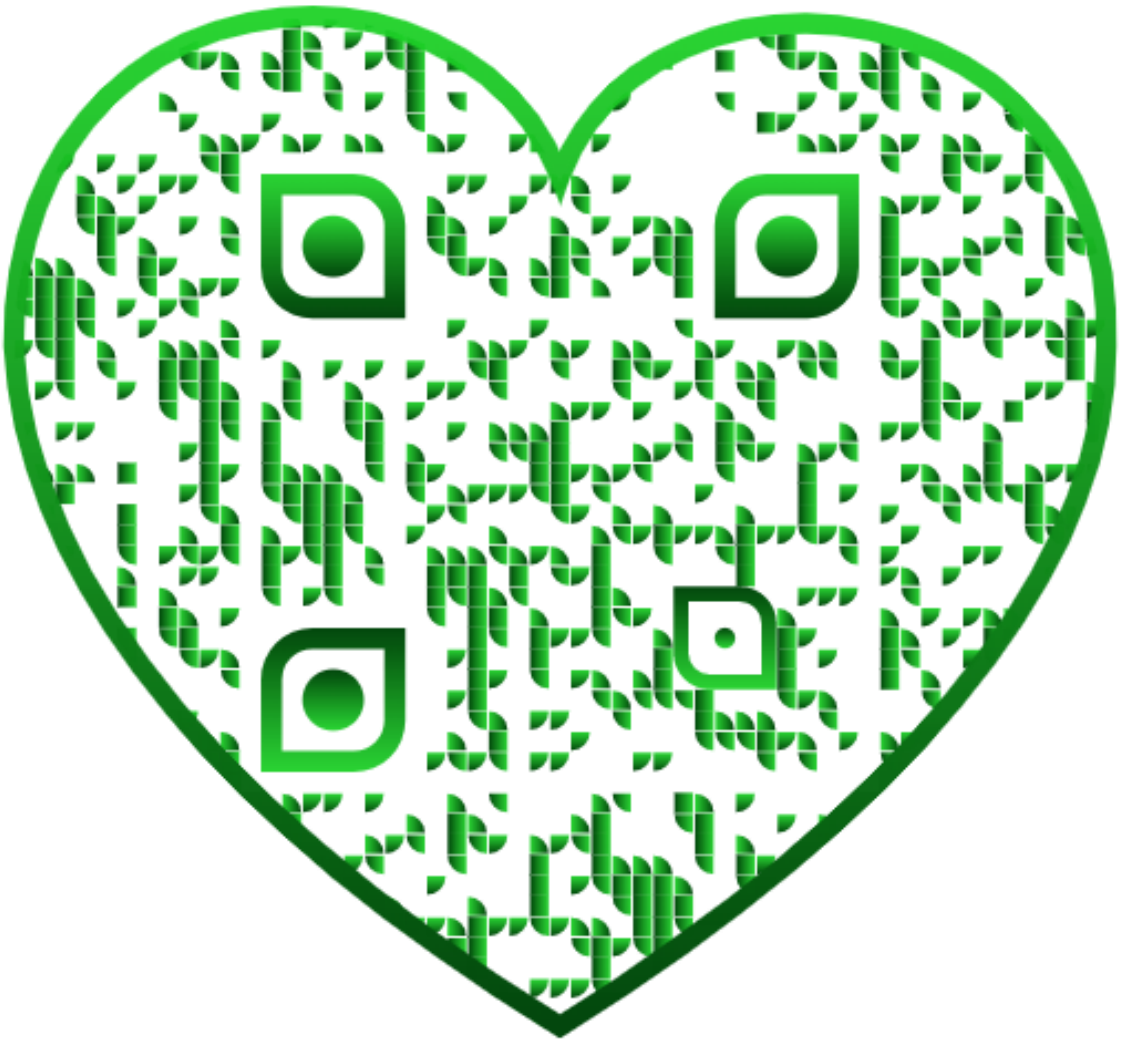
August 2025 The International Publication of the American Society of Cinematographers

American Cinematographer

F1: The Movie

Claudio Miranda, ASC, ACC and Director Joseph Kosinski Hit the Accelerator



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Veteran race driver Sonny Hayes (Brad Pitt) faces rainy conditions in *F1: The Movie*, shot by Claudio Miranda, ASC, ACC. (Image courtesy of Apple.)

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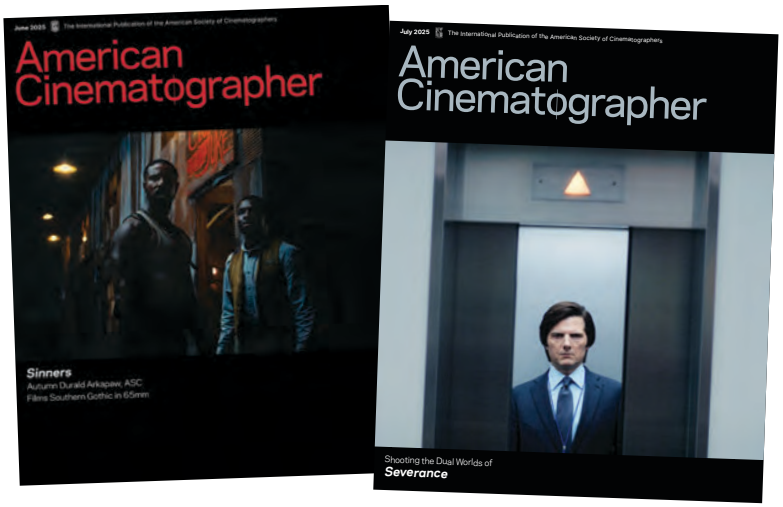
"I'VE BEEN SUBSCRIBING TO *AMERICAN CINEMATOGRAPHER* SINCE THE EARLY 90'S. THROUGH *AC*, WE EXPLORE AND CELEBRATE THE GENIUS CRAFTSMANSHIP OF OUR IMAGE MAKERS." — SEAN BAKER, DIRECTOR



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The ASC is not a labor union or a guild, but an educational, cultural and professional organization. Membership is by invitation to those who are actively engaged as directors of photography and have demonstrated outstanding ability. ASC membership has become one of the highest honors that can be bestowed upon a professional cinematographer — a mark of prestige and excellence.

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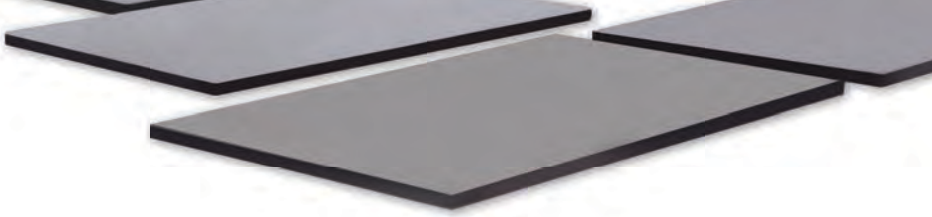

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"Tiffen filtration offers creative tools that can transport the audience to a different period of time, immerse you in a flashback, spirit lens flares, enhance the beauty of talent and enable you to engage the power of light and lens to take your creation higher.

On the film ***Música***, I wanted neutral density control of up to 13 stops without color shift for all my exterior work so we could shoot wide open in full sunlight. Tiffen nailed it with an extended set of NATural ND filters. With them we could lens at 3200 ISO during the day allowing me to create unique grain structures based on each character's personality and emotion.

Shane Hurlbut, ASC, AMPAS

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President's Desk

PORTRAIT BY RUBY BELL.

I intend to continue making the ASC a place where everyone can connect, absorb education, swap ideas and advice, and stay informed and involved in new technology.

Hello to everyone, and welcome to my first column "from the president's desk."

It is such a great honor to be elected president of the ASC, and an even bigger honor to be the first female president in the Society's 106-year history. I want to thank our previous president, Shelly Johnson, for his hard work, dedication and care. He has been committed to making the ASC a place that is inclusive and supportive, where all cinematographers can feel a connection with each other, and I look forward to carrying on his legacy.

I'd also like to offer many thanks and much appreciation to the Society's dedicated staffers, who work tirelessly and efficiently to make the ASC what it is today.

Cinematography is an art form pursued by all types of visual storytellers, and the ASC has successfully built a community comprising the best cinematographers in the world. I am also looking forward to further exploring the history of the ASC's formation, the cinematographers who built the Society, and their dedication to the craft of cinematography. We've accumulated a wide and impressive network of vendors, sponsors, staff and volunteers. Some of our partners are heritage companies dating back to the start of filmmaking, some are on the cutting edge of modern technology, and all are bringing filmmaking into the future.

I intend to continue making the ASC a place where everyone can connect, absorb education, swap ideas and advice, and stay informed and involved in new technology.

Last week's ASC Master Class was a great opportunity to see the caliber of education available to our programs, thanks to our invaluable mentors and guest speakers. We will continue all of our educational initiatives — including the Master Classes, mentorships, various committees, our new premium ASC+ subscriber tier and the *Clubhouse Conversations* series of online peer-to-peer interviews — and we will be expanding our involvement with even more community outreach, both locally and internationally. We're excited to branch out and introduce cinematography to students who may not have initially considered this job as a career possibility, and we'll continue our support for up-and-coming cinematographers from all communities — including the magazine's 2025 Rising Stars of Cinematography, profiled in this issue.

For me, and I'm sure for a lot of others working in camera departments all around the world, *American Cinematographer* magazine is an important part of learning about the art and technology developments in our craft. It's key for us to stay connected to the industry, which is changing faster than ever. We are so lucky to have a well-produced publication that provides such great access to the styles and techniques working cinematographers use to shoot their movies. It is a testament to the camaraderie within our industry that such experts reveal their camera and lens choices, lighting strategies, tricks and methodologies. In order to continue moving forward and improving our craft, it's important for all of us to be on the same page.

I am pleased to present this month's edition of the magazine, which includes articles on *F1: The Movie* (shot by Claudio Miranda, ASC, ACC); *Chef's Table* (shot by Adam Bricker, ASC); and *Chief of War* (shot by one of our very own Rising Stars of Cinematography alums, Matthew Chuang, ACS).

It will be my privilege to connect soon with all ASC members, associates and future members of our prestigious Society.

Best regards,

Mandy Walker
ASC President

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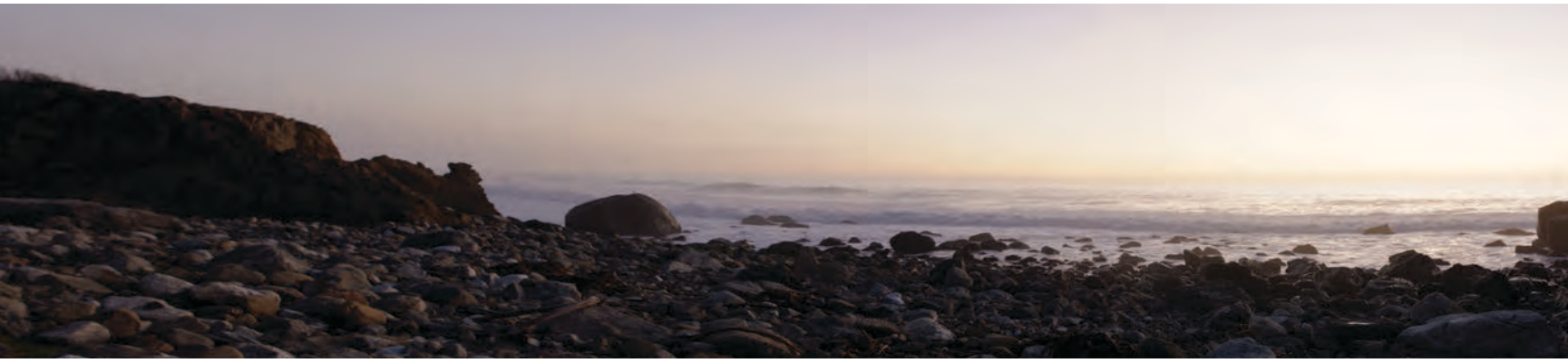
The Basics of Plate Capture for VFX, Virtual Production and Beyond



The quality of your background plates can make or break the illusion, whether you're working with greenscreen replacements, car-process photography, virtual-production LED walls or complex composites involving multi-layered environments.

Although CG environments and Epic Games' Unreal Engine loads have become more realistic-looking by leaps and bounds, there's no doubt that the best plates come from real-world photographed imagery. The subtle imperfections and the nuanced depth of a real lens interacting with real light is the terrain of the cinematographer, and it's imperative that the main-unit cinematographer be involved in creating the necessary plates.

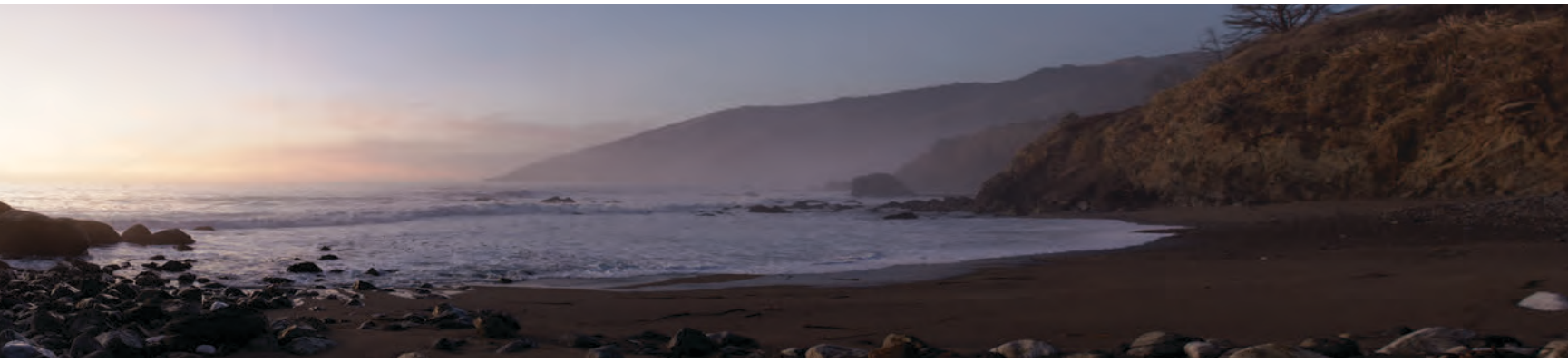
Craig Kief, ASC, who first approached me about covering this topic, was a great help in putting this piece together — and the more time I spent working with him, the more I realized what I knew about plate photography just scratched the surface! With his assistance and the counsel of ASC associate members Guy McVicker, director of technical marketing at Panavision; Fred Waldman, director of virtual production at Fuse Technical Group; and Justin Talley, virtual-production supervisor at ILM StageCraft, I've assembled the basics of what you'll need to know and investigate when the task of capturing plates comes around.

TOP IMAGE COURTESY OF JAMES GALLAGHER AND FUSE TECHNICAL GROUP. BOTTOM IMAGE COURTESY OF FUSE AND PANAVISION.

Increasing Intricacies

Shooting a plate used to be simple: Lock off a camera, get a clean pass, roll a little longer than you think you need, and try not to bump the sticks. But, like everything else in the cinematographer's world, what once was straightforward has become a multifaceted and technically complex art. Today's well-shot plate is more than just a background — it's a data set; a lighting reference; a stitched canvas; and, increasingly, the foundation of realism.

Kief, who has extensive experience with virtual production



A stitched, high-dynamic-range, high-resolution plate (above) was captured with a Panavision Array of four Arri Alexa 35 cameras (opposite) in Big Sur, California, and displayed on the LED-wall volume at Fuse Technical Group (below).

and LED-wall integration, puts it plainly: "The better the plate, the better the illusion will be. A good plate makes your life easier; a bad plate can become a full VFX replacement."

Plates 101

When photographing a plate, first consider how it will be used. The simplest plate is a 2D photograph that's composited as a background to separately photographed foreground elements; these are typically used outside windows, in non-moving shots, or as simple moving plates outside the window of a vehicle. A variation of this might be a plate that's photographed concurrent to principal photography after the main action is recorded — the talent steps out, and the cinematographer gathers a "clean" plate of the background to provide elements for the VFX artists to more easily manipulate the foreground.

A step up from a flat 2D plate is a 2.5D plate, a two-dimensional asset in which certain portions of the image are — after being photographed — digitally "sliced" into separate planes and placed at different depths in the final image. For example, if you have a plate of a distant mountain range with a line of trees in the midground and a park bench in the foreground, then when converted into 2.5D, the mountains would be one slice, the trees the second and the bench the third. With these slices — along with VFX-created filler placed behind them so the camera can look "around" them — a small movement of the production camera can be incorporated, and an approximation of real-world parallax can be seen in the images as the shift between the slices closely resembles the virtual depth to the camera. Full CGI or additional photographic elements are often layered onto the plate as well, to enhance it and also add to the parallax. This type of plate is used when the camera move is subtle or the background elements in the plane are at a significant enough distance that a slight parallax will work.

A 3D background plate comprises a three-dimensional digital environment in which objects can be explored from all angles, so that the camera can move anywhere and see the proper view of these background elements. 3D plates are often used in virtual production and/or complex sequences with substantial camera movement. Such plates can be a

BOTTOM IMAGE BY JARED LECLAIRE, COURTESY OF FUSE.

IMAGES COURTESY OF FUSE AND PANAVISION.

Top: ASC associate member Guy McVicker, director of technical marketing at Panavision, works on the Array. Above: A small Array of four Red Komodo cameras captures sunset so a production can later shoot endless magic hour on a volume.

hybrid of CG geometry surfaced with photogrammetry textures or an entirely CG-rendered environment.

Types of Plate Origins

The simplest plate is photographed with a single camera from a single perspective. Where it starts to get complicated is if you need an angle of view for the plate that's wider than the production taking lens used to capture the foreground action. Sometimes this goes beyond just choosing a wider focal length, as doing so, which yields less magnification, can break the illusion when composited into a longer focal-length lens on the taking camera. To compensate for this, when wider angles of view are required, the plates will often be made from multiple images that are stitched together; this can be done with a single camera from a single locked position and a nodal head that doesn't alter the parallax of the camera's viewpoint from shot to shot. These separate images can be stitched together in post.

An alternative to tiling from the footage of a single camera is an array of cameras that are intended to be stitched together in a wide angle of view. This is not a new process, but it has been refined by companies such as Panavision, which has not only crafted intuitive and fast plate-shooting array baseplates, but also manufactured specific lenses that are accurate to each other within 1 percent of the focal length — a Herculean feat of optical engineering. The Panavision Array system allows for quick setup to capture 180-degree or 360-degree images that only require 5 percent of image overlap (as opposed to the typical 30 percent) due to the precision of both the baseplates and the lenses, which together enable excellent alignment. It's possible to incorporate cameras into the system that also have a vertical shift in position to create a full wraparound dome to the final stitched image. This is a great technique for car-process images on LED walls with LED ceilings where the actual sky from the plate is reflected on the car.

"Photographing plates is about anticipating," Kief observes. "Think like a cinematographer, but also like a compositor. What will they need later that I can give them now?"

Many productions are turning to Unreal Engine (or to ILM's proprietary Helios application) as their virtual playground for LED-wall and greenscreen composite, but the game engine isn't really designed for motion-picture work, and Epic seems to be more focused on their original mission of rendering video-game imagery. New tools such as Fuse's Iris — "the product of a decade of collaborations with filmmakers," says Fuse systems architect Jared LeClaire — are entering the fray. LeClaire has designed Iris to be used specifically for motion-picture and television production, and to work with real-world, photographed elements. Iris not only works with photographed plates, but it also stitches them together in real time, seamlessly, on the fly — even when the source material is in raw. It's a real-time compositor working in ACES, at the highest quality, highest-bit real-time to real-time stitch. This greatly reduces the time and resources typically required to make plates usable on the production stage. Iris can also add elements to plates, including atmospheric weather, some lighting adjustments, 2.5D elements for camera parallax, accurate depth-of-field defocus and bokeh, and full color correction.

Best Practices

Now we'll explore elements that should be considered when shooting plates:

Photosite Count and Format

Always oversample. 8K is preferred, and is quickly becoming standard for plates. Shoot raw if available; if not, use ProRes 4444XQ. Maintain consistent color balance and gamma settings across plates. If you're shooting for LED-volume projection, match or beat the final-delivery resolution of the wall.

Shutter and Motion Blur

When shooting for compositing, especially with car plates, the motion blur has to match the hero camera. A 90-degree shutter

TOP IMAGE BY JAMES GALLAGHER, COURTESY OF FUSE AND PANAVISION. MIDDLE AND BOTTOM IMAGES COURTESY OF PANAVISION.

angle on the plate doesn't composite well with a 180-degree main unit. For moving plates, a camera with a global shutter is your best bet even if it isn't the same camera as the main production. In general, match shutter and frame rate exactly. Do as much physical stabilization as possible, because post stabilization often creates unwanted artifacts in the image.

Lens Choice

When shooting plates for post compositing, match your hero lens in focal length, depth of field and depth of focus. (Also shoot in focus in case the compositors need it.) Some virtual productions go so far as to use the same lens to shoot plates and talent alike. Kief notes, "Even slight mismatches in spherical aberration or edge falloff can make composites feel 'off.' It's subconscious, but the eye picks it up."

If your plate is to be projected on an LED wall, always shoot spherical even if your main camera is anamorphic. It will not only be easier and cleaner to stitch plates, but any projected anamorphic bokeh will be multiplied by the production camera, creating bizarre and unusual artifacts. The goal of the wall should be to look as close to the real world as possible.

Fisheye lenses used to be frowned upon due to extreme aberrations at the edge of the frame, but with recent improvements in rectilinear distortion on some of these lenses, they can work well when the plate requires an extreme angle of view, especially in the case of dome plates.

Bracket and Expose Thoughtfully

Capture a wide exposure, and consider bracketing for high-contrast locations, especially if shooting with less than a high-end digital cinema camera. You might be asked to deliver overexposed and underexposed versions to dial in realism. When possible, shoot gray cards and color charts in the environment for every setup.

Leave Room for Parallax

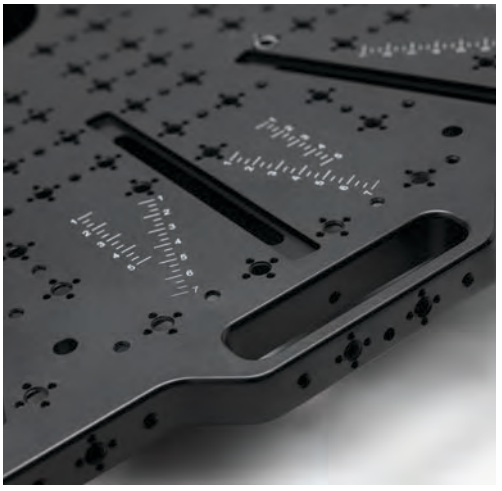
Even if you're locked off, shoot a wide master when possible. Better yet, overscan or stitch multiple tiles to give VFX options to create artificial camera movement later.

Parallax Depth for 2.5D

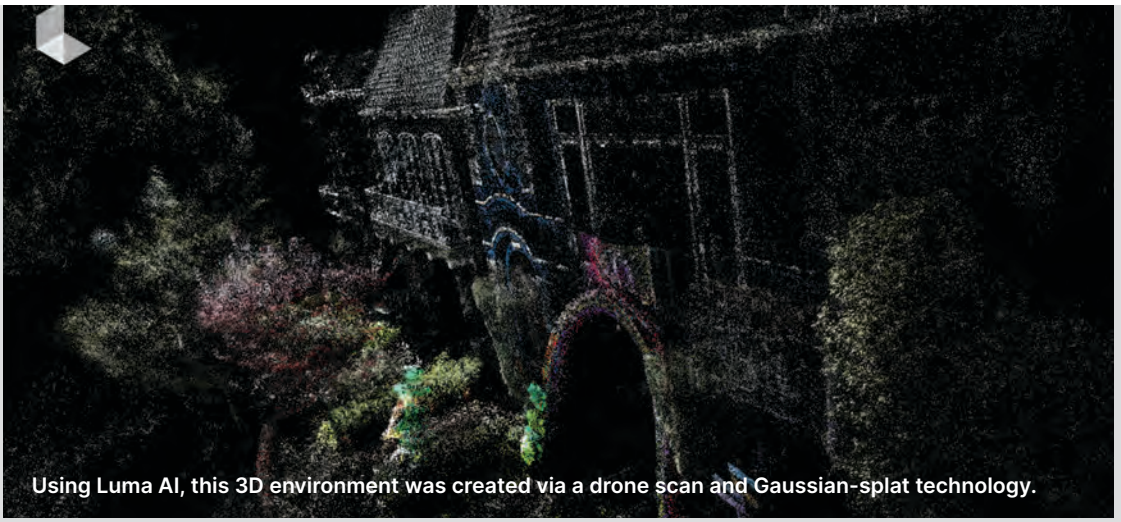
When shooting 2.5D plates, find foreground objects to provide depth cues. "The more depth you give your 2.5D plate, the more 'real' it feels," says Kief. "Even if you're just panning a flat image, those cues make a huge difference."

Color, Contrast, Compression

Avoid baked-in contrast or LUTs in your plate photography because the imagery will need to be color-corrected when on the wall in order to make it look good on the taking camera. Make sure your color pipeline is matched to your primary cameras, which means using the same color space and gamma curves where applicable. Shoot at 10-bit or greater to avoid banding in the image and degradation from chroma subsampling. Shoot with the lowest compression possible (or none) to avoid



Top: A line of Arri Alexa 35s at prep, standing by to be mounted on a Panavision Array baseplate. Middle: An assembled 360 camera array. Above: A close-up of an Array baseplate.



IMAGES COURTESY OF NOAH KADNER.

Using Luma AI, this 3D environment was created via a drone scan and Gaussian-splat technology.

Beyond the Lens: Gaussian Splats

The next great revolution in capturing 3D space is the Gaussian splat, or G-splat. The technique involves capturing a wide series of photographs of a location from different viewpoints, and running the images through an application that combines the images into a full 3D rendering of that location.

This eliminates the need for complicated tiling and stitching or complex 3D photogrammetry; Consider it a combination of lidar and photogrammetry, but easier and faster.

Gaussian Splatting uses billions of semi-transparent points (or "splats") to reconstruct a scene volumetrically. Unlike traditional mesh-based photogrammetry, splats are faster to process and more forgiving of data irregularities. This allows for faster environment capture using fewer images and results in parallax-correct backgrounds that feel shockingly real.

Luma AI is one example of a company making strides in this field. While still in early stages, its Gaussian-splat pipeline is opening up fast, lightweight ways to turn a location into a usable 3D (or 2.5D) background plate. And you can shoot it with your cinema camera. G-Splats can also be created from VFX HDRI images captured by the effects team at the time of principal photography. The downside of G-splats is that as photographed elements, they are not relightable — the lighting is baked in at the time of capture.

Consider it a combination of lidar and photogrammetry, but easier and faster.

— *Jay Holben*

image artifacts. Images on the wall always look worse than on a monitor. Every small imperfection is enormously magnified.

Appropriate Light

Consider the lighting needed for the scene, and make sure the plate is shot with the appropriate light and that it can be matched on stage with the foreground elements.

Don't Lock Yourself In

Whenever possible, shoot multiple passes — day and night, wet and dry, fast and slow, different heights, and so on. Options are everything.

Coordinate With Post

Loop in your VFX supervisor or virtual-production team early. Know what they need before you roll.

Two More Tips

Match the sensor size as closely as possible; don't shoot the plate on a GoPro if your A camera is an Alexa 65. When capturing from a process vehicle, shoot the plate from the correct height of your picture car.

Care and Intent

Plates should never be an afterthought. The next time you're asked to "just grab some plates," stop and take a breath. Treat plate photography with the same care and intent as principal photography. In the end, great plates are about intentionality. You're not just capturing scenery, you're building an environment, providing a foundation for interaction, depth, light and story. Take the time. Make the effort. Shoot it like it matters.

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On the Fast Track for *F1: The Movie*

Claudio Miranda, ASC, ACC and director Joseph Kosinski tap customized camera solutions to put viewers in the driver's seat.

By Mark Dillon

The filmmaking team behind *F1: The Movie* wanted audiences to experience all the speed, g-force and high-risk danger of Formula One racing. To that end, cinematographer Claudio Miranda, ASC, ACC and director Joseph Kosinski collaborated with Sony on customized cameras as small enough to be mounted on a racecar but with a sensor large enough to capture images that could be shown on both standard theatrical and Imax screens, per the studio's distribution strategy.

F1, Kosinski and Miranda's sixth feature collaboration, finds former hotshot Formula One driver Sonny Hayes (Brad Pitt) playing out his career in whatever class he can get a ride. He gets another chance in the big league when former teammate Ruben Cervantes (Javier Bardem) persuades him to join his struggling APXGP (or "Apex") Grand Prix team and mentor headstrong rookie driver Joshua Pearce (Damson Idris).

Opposite: An Apex racecar speeds down the track. Above: Veteran driver Sonny Hayes (Brad Pitt, left) locks horns with his headstrong Apex teammate, rookie Joshua Pearce (Damson Idris). Below: A dynamic shot from the movie places viewers just behind a car's cockpit.

Kosinski and Miranda started discussing the project when they were shooting *Top Gun: Maverick* (*AC* June '22). "While working on a movie together, we're always talking about the next one and what we could do better," the cinematographer says, joking, "That's what keeps me around."

For their *F1* research, the pair screened various racing movies but thought few achieved the verisimilitude they sought. Miranda recalls: "What I didn't like was that when the camera perspectives were outside the cars, it looked fast, but when they were inside them, it felt like a taxi ride."

Getting the true feeling of speed became a major challenge for the filmmakers, since the average racing speed of an F1 car at 120 mph is difficult to fake, and the typical cheats and techniques just wouldn't pass muster. Miranda continues, "It would be hard to fake the speed on a biscuit rig [either remote or with a pod driver] that can only go 60 mph on the straights and 20 mph around a corner. That would be sad."

The notion of using a more standard remote-arm chase vehicle was also rejected, as it could never compete with the actual speeds of the F1 cars on the track.

"It was suggested that we should shoot on a volume stage," Miranda adds, "but doing that or using bluescreen would also be sad — there would be no kinetic energy. Joe and I were not interested in that kind of approach."

Another potential cheat strategy would be to speed up the image, which the filmmakers only wanted to do to a minor degree. "If you're speeding things up from 20 mph to 200 mph, people start to look like weird bobbleheads," Miranda explains.

Complicating things even further, Pitt and Idris would be doing most of their own driving. "Everyone was saying, 'Do we really want an actor like Brad Pitt going 150 miles per hour?' But as production went on, Brad became a better and faster driver."

So, that became the accepted strategy: Let the actors drive for real and keep the camera footprint on the cars as low as possible. "Ideally, we wanted our drivers to match F1 speeds, but that's impossible when the cars are carrying the kind of camera gear we added to them. So, we cheated [by speeding up some shots just] slightly."

The mission, he asserts, was to be "as realistic and as fast as possible."

One particular film that did inspire the filmmakers was John

UNIT STILLS BY SCOTT GARFIELD. IMAGES COURTESY OF WARNER BROS. PICTURES AND APPLE.

From top: Apex team owner Ruben Cervantes (Javier Bardem) tries to lure his friend Sonny back to the F1 circuit; Apex technical director Kate McKenna (Kerry Condon, left) and team principal Kaspar Smolinski (Kim Bodnia, middle) monitor a race; Sonny gets off to a rough start with Apex, smashing up a car during his time-trial "audition."

Frankenheimer's *Grand Prix* (*AC* Jan. '67; see Wrap Shot, page 72), shot by Lionel Lindon, ASC. The 1966 film features groundbreaking aerial work, as well as footage captured from onboard cameras that could rotate from the driver's POV to a shot on the driver, proving that actors James Garner and Yves Montand were actually behind the wheel. "It was a big reference for us," says Miranda. "There's awesome stuff in that movie. In those days, they didn't have the visual effects we have now, but we wanted to stay away from digital enhancements as much as possible and capture as much as we could for real."

"A Sensor on a Stick"

In configuring cameras to capture race footage, Miranda says, "I tried putting every camera body in front of the drivers, but they couldn't drive with even the smallest ones in front of them — even the Sony FX3 was too big. And, for our purposes, small prosumer action cameras were crappy."

The filmmakers initially considered using the "Rialto Mini," Sony's new, smaller Venice extension system, but Dan Ming, Miranda's longtime 1st AC, explains, "We decided it was still too large."

The result was a new prototype camera made by Sony specifically for the production. "I told Sony I wanted a sensor on a stick," Miranda says. Ming adds, "Sony offered to take the recorder base from the more compact Sony FR7 PTZ robotic camera and design smaller-head units to house the 4K full-frame sensor," explains Ming.

The camera the filmmakers created with Sony was officially called "the Prototype," but nicknamed the "Carmen" — a reference to Brazilian singer and dancer Carmen Miranda, who shares the cinematographer's surname.

The Carmen was a stripped-down, modified Sony FX6. Miranda had the auto ND-filter mechanism removed, keeping only the ND slide, which would go behind the lens. He notes, "That was critical, because one of our favorite lenses is the 10mm Voigtländer, and it's impossible to put an ND in front of it. We used the Carmens a lot in the cars, and they just got hit and pelted with debris. We went through a lot of them."

Voigtländer Hyper Wide Heliar rectilinear aspherical 10, 12 and 15mm lenses captured the actors' performances in the cars with good geometric-distortion correction. For tighter angles or looking out at the track, says Ming, they used Zeiss Loxia E-mount lenses, which they had tested extensively on *Top Gun: Maverick*.

Ming adds, "We used standard FX6s as crash cams on the ground, and on cars that were to be crashed. Another cool piece of kit we had was a fully remote-controlled, full-size car that could be driven from a simulator setup. This allowed us to drive the car into the wall and stage other dangerous setups without risk to the drivers. Those cameras were streaming live video links for the drivers to drive with, and we had rigged FX6s in crash boxes for the impacts."

Gearing Up

The filmmakers had the full cooperation of Formula One, and seven-time F1 champion Lewis Hamilton signed on as a producer, facilitating introductions to other league figures and serving as a technical adviser.

The production's race cars were actually the heavier and less powerful models intended for the second-tier F2 league administered by the Féderation Internationale de l'Automobile (FIA), the governing body of world motorsport. The vehicles were modified by the Mercedes-AMG Petronas F1 Team to replicate the chassis of the longer Formula One vehicles. One electric car was used for pit-lane action and starts, and four vehicles with Mecachrome engines were deployed on the track. VFX on

the cars largely involved digitally altering their skins to represent whichever team a scene required.

The filmmakers had 15 possible camera-mount positions spanning the cars' front wing to the rear end, enabling them to cover the race action from every direction, but mounted a maximum of four cameras on a car for any given setup. Miranda and Ming worked with Panavision to develop remote-control pan heads with internal motors that would allow the Sony Carmen cameras to rotate 720 degrees. The cinematographer adds that the units also allowed the filmmakers to control focus, exposure, color temperature, roll and cut.

Ming explains, "The pan heads were remotely controlled from our mission-control area. Panavision built them specially for the Carmen cameras. The driving mechanism for the head used a Preston motor so that we could use the same motor driver [MDR] to drive focus as well as the pan."

In each car, pans were executed via a pair of Preston Cinema Systems MDR-3 four-channel motor drivers plugged into RF Film's onboard IP networks, which also connected the four cameras and wireless mesh radio. Separate 4K transmitters from Wireless Wizards and Hornets-Tech sent a QHD signal for monitoring. Chrosziel motors drove focus. Ming details, "We designed the system using the Prestons because we knew RF Films could control them over an IP network, which was key while using a mesh network to cover the track wirelessly. So, we designed the heads with Panavision to use Preston motors to drive the pans. Also, with Preston motors, when you don't send an input, voltage is sent to the motors to lock them in place. Some systems allow you to move the lenses by hand and will snap back to position only when you send a signal to it, which is bad in high g-force environments. So, with one MDR-3 motor drive, we had four channels, which could control two focus and two pans each."

The manufacturer also built custom boards to power the entire system with Anton Bauer 26-volt batteries regulated to the Sony cameras' required voltage. "We could only fit four recorders on each vehicle, [which is why] we were limited by space to four cameras per vehicle for each setup," says Ming. "Due to bandwidth and video-transmission limitations, we kept a limit of 16 simultaneous cameras, total, between all the vehicles."

Miranda notes, "Cameras and mounts were changed constantly; we could not put all the cameras out [on the cars]. It would have been too hard to drive, and we did not want to do unnecessary cleanup [by digitally painting out cameras from each other's shots]. We used the cameras we needed for the shots we were trying to achieve."

Two camera mounts occasionally faced the drivers on a riser less than 1" tall, which created just enough room for Pitt and Idris to see under them as they took a turn. All told, the filmmakers ended up with an estimated 5,000 hours of racing footage.

One car was essentially a dedicated camera vehicle, capturing POV shots and panning to cars beside it. Stunt drivers took the wheel for the more challenging bits of race work, donning the actors' helmets.

Action-vehicle supervisor Graham Kelly and his team assembled the cars and helped secure the equipment inside. The longer bodies of the F1 vehicles created more space for gear in the floor trays (components located beneath the car, near the front axle), including the recorders and battery plates. "We had to make sure we could run our cables from the floor trays to any of the camera-mount positions," notes Ming.

Then there was the matter of operating the small cameras remotely. Miranda recalls, "My concern was, 'Can we control the cameras and whip-pans through all of the track? What system would work?'" The

From top: Joshua pushes a car to its limit during a practice run; Joshua's friend and publicist, Cash (Samson Kayo), his mother (Sarah Niles), Cervantes and Apex chief mechanic Dodge Dowda (Abdul Salis) grow tense while watching a Grand Prix; after ignoring Sonny's strategic advice during a race, Joshua suffers a fiery crash that lands him in the hospital.

PHOTOS ON THIS PAGE AND OPPOSITE COURTESY OF SONY AND THE FILMMAKERS.

Clockwise from top left: Claudio Miranda, ASC, ACC (orange striped shirt) and A-camera operator Lucas Bielan prep car-mounted cameras; custom Sony FX6 Prototype "Carmen" cameras and a transmitter help track the action; a closer view of a Carmen panning camera; a side mount supports one of the pan cams.

production turned to wireless-video specialist Greg "Noodles" Johnson of RF Film. "Noodles was able to get our [Carmen panners] networked around the whole track with video, focus and camera control," Miranda continues. "So, if I couldn't change an ND, I could change ISO on the fly. He worked closely with Dan Ming to help with all of this integration."

"Lights Out"

Everything was put to the test when principal photography kicked off in July 2023 at the British Grand Prix on the Silverstone Circuit. To chronicle the ups and downs of the fictional Apex racing team's season, the production piggybacked on the actual Formula One calendar, setting up at races in Hungary, Belgium, Italy, the Netherlands, Mexico, Las Vegas and Abu Dhabi, where the main unit and actors were usually on hand.

The movie includes actual race footage supplied by Formula One and its teams from various trackside cameras, lipstick cameras buried in the track, and a cablecam; some of these placements were made at the filmmakers' request. Ming notes, "Claudio tweaked camera settings for more compatibility with our [main production cameras], Sony Venice 2s, and Joe would have meetings with the broadcast team before each race to tweak certain angles if there was a specific shot we needed at a specific turn."

F1 teams typically have two "camera pods" on their cars — housings for both cameras and transponders that can transmit data — but the 720p broadcast cameras they typically contain had to be replaced with custom units that would satisfy the production's high-end cinema demands. The solution could not add extra weight to the vehicles.

In collaboration with Formula One, the FIA, and engineers at Apple, the filmmakers opted for iPhone technology; the tiny custom cameras, capable of shooting 4K raw, were placed on two competing cars during races. Ming explains, "We found that the iPhones' In-Body Image Stabilization did not work well with the high-frequency vibrations and violent g-forces we were working with, so when Apple designed and built the custom wing cameras for the F1 cars, we had to go back to an older chipset that didn't have that feature."

For aerial work, the production favored helicopters over drones. "Joe and I watched some FPV drone footage of races and got so turned off by the slickness of it," Miranda observes. "We kept it more cinematic and were able to do a lot with helicopters. For the Daytona section of the movie, Kevin LaRosa II served as pilot and Michael FitzMaurice was the

Clockwise from top: A closer look at the Carmen system; a helmet cam used to capture shots from the driver's perspective; a dashboard-mounted cockpit camera.

operator; they had worked with us on *Top Gun*. Various pilots and operators handled other sequences."

One of those helicopters provided a variety of footage for the movie's opening sequence, which shows Sonny competing at the 24 Hours of Daytona race. The chopper was visible in one shot, so the production's visual-effects team digitally altered it to resemble a TV-news chopper — although Miranda notes, with a laugh, that its presence so close to the track would be highly improbable at a real race.

Immersed in the Action

To take advantage of the large crowds for wide shots, the production shot on the racetracks with the actors and stunt drivers in brief windows when there were breaks in the action during real qualifying rounds. "It was a rush to see Brad really going out there with all the race fans watching," says Miranda. "The ADs would give them Apex racing-team signs and rally the crowd with, 'Hey, it's Brad Pitt, put your hands up!'"

At the Abu Dhabi Grand Prix, after the three actual finalists left the winners' podium, three cast members walked on and performed their own champagne-popping for the cameras in front of the cheering throng. "It would take us longer to get through all our setups, and eventually the crowd would thin out," Miranda recalls. "We sometimes left our cameras in shots. I was operating a crane for a wide shot in which you'll see another operator shooting our close-ups. We dressed them to look like press."

Formula One gave the Apex team its own garage in the pit lane next to the official teams' spaces, allowing the filmmakers to shoot scenes with their actors as real racing action unfolded around them. "We had to be light on our feet, and equipment had to be minimal," Miranda says. They also had to be mindful not to interfere with the airwaves: "I had to work with F1 during races to make sure we weren't jamming any of their cars with all of our electronics. That was super-critical."

The need to be nimble at races led the filmmakers to use a DJI Ronin 4D with Sony G Master lenses, with the crew controlling iris and focus remotely. "That allowed us to be a little mobile unit running through the paddock," Miranda explains. "I was stressing to people, 'Let's keep it small.' I wanted something self-contained."

A-camera operator Lucas Bielan handheld the Ronin 4D for a tracking shot at Daytona in which the napping Sonny is awakened by a knock on the door of his van. He steps out into the midnight air and walks down a path to his team's car, where he testily replaces his teammate for the

PHOTOS ON THIS PAGE COURTESY OF SONY.

Pictured here: A gimbal-mounted F1 vehicle. Below: A remote head mounted on a Servicevision Scorpio 10 crane angles in on a driver.

next leg of the endurance race.

For the race at the Silverstone track in England, production set up their cars behind the real drivers at the starting line and shot them as they all took off — except for Sonny, whose car mysteriously stalls. "I wanted a crane-type shot of the start of the race," Miranda says. "The Ronin 4D has an extension system similar to the Venice Rialto extension system. The gimbal and head separate from the main system, allowing us to put the gimbal head at the end of a speedrail pole, making a very small crane. Ideally, I would have had a normal crane, but that was not an option; we had to clear everything in under a minute. I tried to have a driving crane, but that was not allowed, so we did it small and cheerful."

Lens Arsenal

Most off-track scenes were shot in the U.K. with Sony's Venice 2,

A Pit Stop With Kosinski

AC caught up with *F1* director Joseph Kosinski in Montreal, where he was promoting *F1* at the Canadian Grand Prix.

***American Cinematographer*: It's been reported that you were inspired to make this movie by the Netflix docuseries *Formula 1: Drive to Survive*.**

Joseph Kosinski: I've always been interested in [the Formula One] world. I got a degree in mechanical engineering with a focus on product design, then went to architecture school. This world was well suited to my interest [especially in terms of how] it works and operates.

During the pandemic, I watched the first season of *Drive to Survive*, in which they focus on the last-place team and rookies no one had ever heard of. It sparked the idea that this would be an interesting way to enter this world — from the point of view of a losing team, rather than a winning one.

This is your sixth feature with cinematographer Claudio Miranda in the last 15 years. What allows this partnership to endure?

In addition to being a good friend and great person, he's an artist with an amazing eye, but also an incredible technician who loves creative problem solving. I'm always looking for a new challenge and a way to capture something that hasn't quite been done before. Often that requires R&D, going back to *Tron: Legacy* with the lit suit, then *Oblivion* with front projection, and *Top Gun: Maverick* and trying to get those cameras in a cockpit, leading up to this one, which meant we'd have to go much smaller and lighter than any camera system we've used before to [convey the speed of] these cars.

What did you convey to Claudio in terms of how you wanted this movie to look?

[Formula One driver and producer] Lewis Hamilton told me he'd never seen a racing movie that really captured what it feels like to be in the car. So, I said to Claudio, "We're going to build racecars. We're going to teach Brad and Damson how to drive these cars, and then we need to capture it in a way that doesn't slow them down and allows them to really drive."

[I added], "And we're not going to have control of the lighting. It's not going to be like *Top Gun: Maverick*, where we can wait for magic hour every day. It's got to be immersive, so when we're in the car, it has to be wide-angle and close, plus [we need to] capture that sense of speed. We're going to be 'run and gun,' in that we're shooting during real Grand Prix events. Instead of having three hours to shoot a scene, we might have three minutes, which means using the available light. At the same time, I don't want it to feel like a documentary. I still want strong compositions and proper coverage. So, we're going to have to be smart about how we use that three-minute period to get everything we need to properly cut a scene."

What were the most meaningful references for you?

Grand Prix is the touchstone — [that film was] shot at real events in a beautiful [Super Panavision 70] widescreen format with great compositions [by director of photography Lionel Lindon, ASC].

Armed with a viewfinder, director Joseph Kosinski finds his frame on a racetrack. Supporting the lens is Bielan; standing behind Kosinski is 1st AD Toby Hefferman.

They had an early version of an onboard panning camera that had one move, triggered by the driver. Another reference is the Steve McQueen movie *Le Mans* [1971, shot by Robert B. Hauser, ASC and René Guissart Jr.]. I looked at those films the most, because although they are 60 years old, you can still watch them and be amazed. They capture a snapshot of a time and place, and I wanted [our] film to do the same.

Claudio told us that in the interest of realism, you didn't want to do bluescreen and volume stage shooting.

No, avoid at all costs! You can feel that when you see the film. It's really in the performances, and how we embrace the energy of the shoot. The camera shakes around, the drivers hit bumps, and that's fine. We wanted to preserve all that.

You and Claudio collaborated with Sony on the compact onboard cameras, which you called "Carmens." Did those cameras present any challenges?

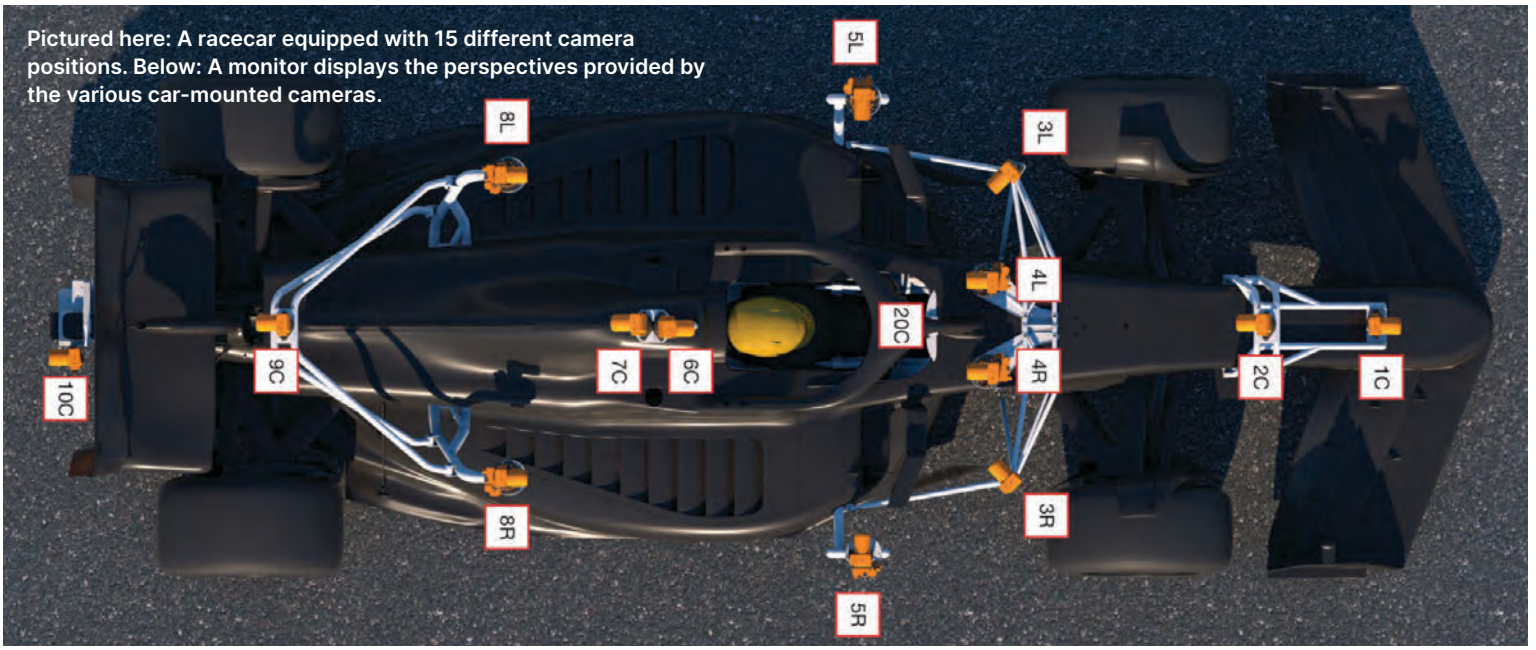
We did some testing, and the vibration was so high that we had to redesign the mounts with a different material to absorb the vibrations so that we could get a decent image. We also had issues with transmission signals, so we ended up putting antennas all around the track to make sure we were getting picture. If you can pan a camera but you can't see the image, it's pointless. You need to control the camera and have an image with as little delay as possible.

We also had fancy, expensive lenses, and if the car in front hit some sand it would just crush the glass instantly. We had issues with bugs and rain, because the cameras do not like getting wet. So, there was constant modifying and improving as we went along; we were even adding mounting locations for the cameras right up until the last two races.

— Mark Dillon

equipped with Arri/Zeiss Master Prime lenses; Miranda sometimes operated A camera, while B camera was operated by Natasha Mullan. A third camera was occasionally needed. The filmmakers captured mostly in the Venice 2's Super 35 mode at 5.8K 17:9 to satisfy both the traditional 2.39:1 aspect ratio for most theaters and home screens and 1.90:1 for digital Imax exhibition. For certain shots, including some helicopter footage, they shot at 8.6K 17:9 full frame in case the VFX team needed to do any replacement work.

For plate photography, Sigma FF Prime lenses were deployed. "We shot a lot of plates — usually background plates with crowds — since we couldn't get all the angles of a scene live," Ming says. "We'd shoot what we could live at every race, but we'd have to clean up some scenes after



Pictured here: A racecar equipped with 15 different camera positions. Below: A monitor displays the perspectives provided by the various car-mounted cameras.

DIAGRAMS AND PHOTO ON THIS PAGE COURTESY OF THE FILMMAKERS.

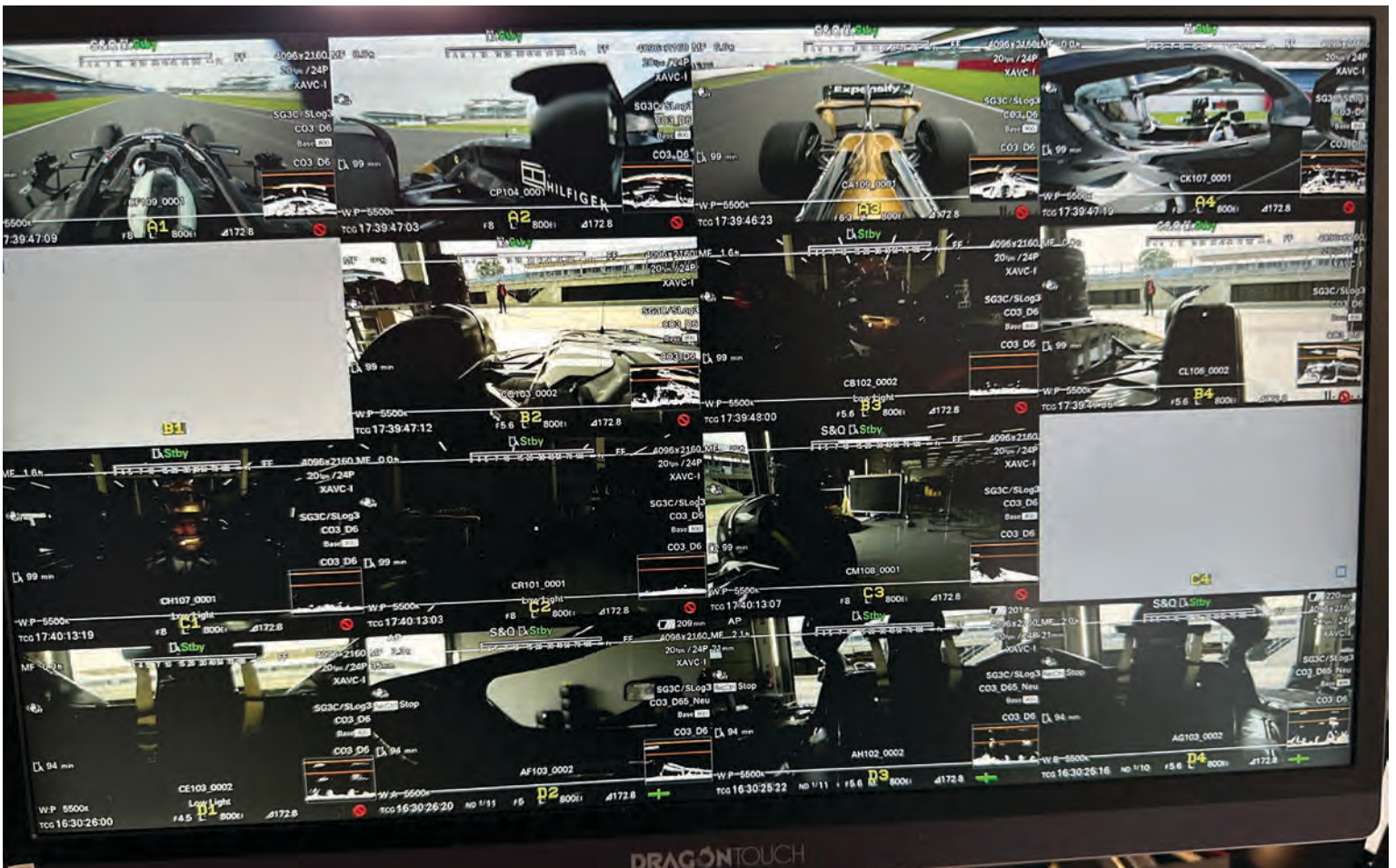
the races had moved out. We shot full frame to get maximum resolution."

The camera team shot in full-frame mode when using the 150mm Master Prime to achieve shallower depth of field. "I like the way it looks in full frame — it bleeds off the edges and gives you a bit of a different look," the cinematographer says.

Zoom lenses were employed to simplify reframing while shooting races. On the ground, Fujinon Premier PL 18-85mm and 24-180mm zooms were used on cranes, the U-crane mobile arm and sometimes on the dolly. When the filmmakers wanted to reach as far as possible on the dolly, they called on the Premier 75-400mm.

In the helicopter, they selected from among the Fujinon Premista Lightweight 19-45mm, Premista 28-100mm and 80-250mm zooms for their full-frame compatibility.

The Rialto extension at 8.6K 3:2 full frame with the 10mm Voigtländer was deployed for a particularly significant driving shot. In an earlier scene, Sonny explains that he drives for that rare moment of grace when it feels like he's flying, and he achieves that sensation during the season's final race. The filmmakers convey this heightened moment for the

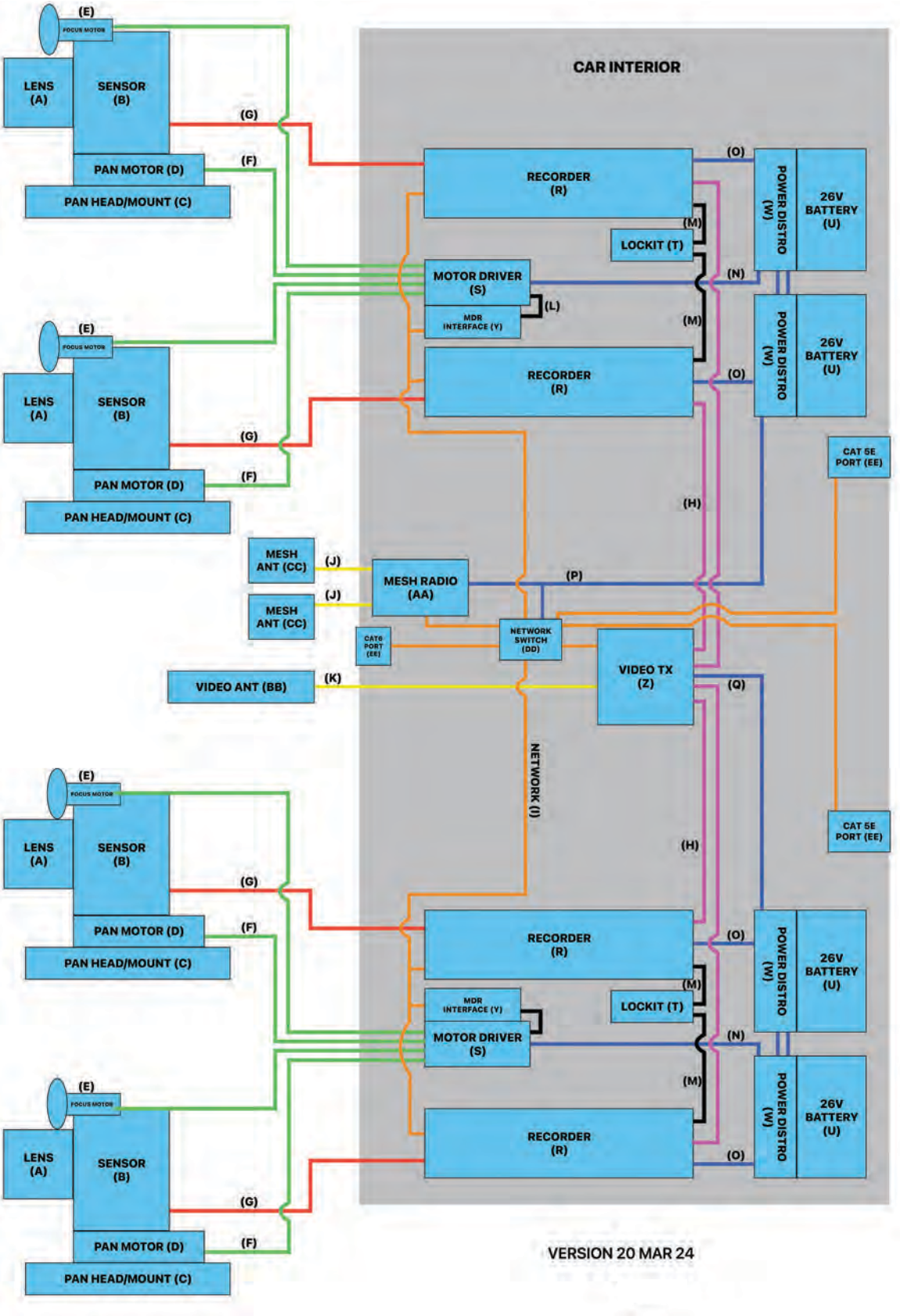


viewer by adopting Sonny's POV as he speeds down the track. "I couldn't put a roll rig on the camera," Miranda says, "so we shot at a higher resolution. A roll rig would be a device we could use to control the 'rolling down the track' shots remotely, but the rigs that were available were too big and clunky. Instead, we overshot the desired framing to allow for post roll. Since we were shooting 8.6K, we had plenty of resolution to do that. We shot wide and then, in post, we got the frame we wanted within the original shot and created that 'rolling' effect. We ran some tests on that and were happy it worked."

Miranda composed for a 2.39:1 frame, aware that *F1* would be exhibited in digital Imax on hundreds of screens. "With Imax [1.90:1], you still have a sense of horizontal framing, and you're getting this extra immersion. We're not hitting the Imax film 1.43:1 ratio, although Joe thought a lot about it — on *Top Gun: Maverick*, we opened up to 1.43:1 in the aerial sequences — but this movie has so much racing that he found it hard to go in and out of different formats so often." (In the Imax version, after some introductory beach imagery and a cut to the Daytona race, the frame opens up to 1.90:1, where it remains.)

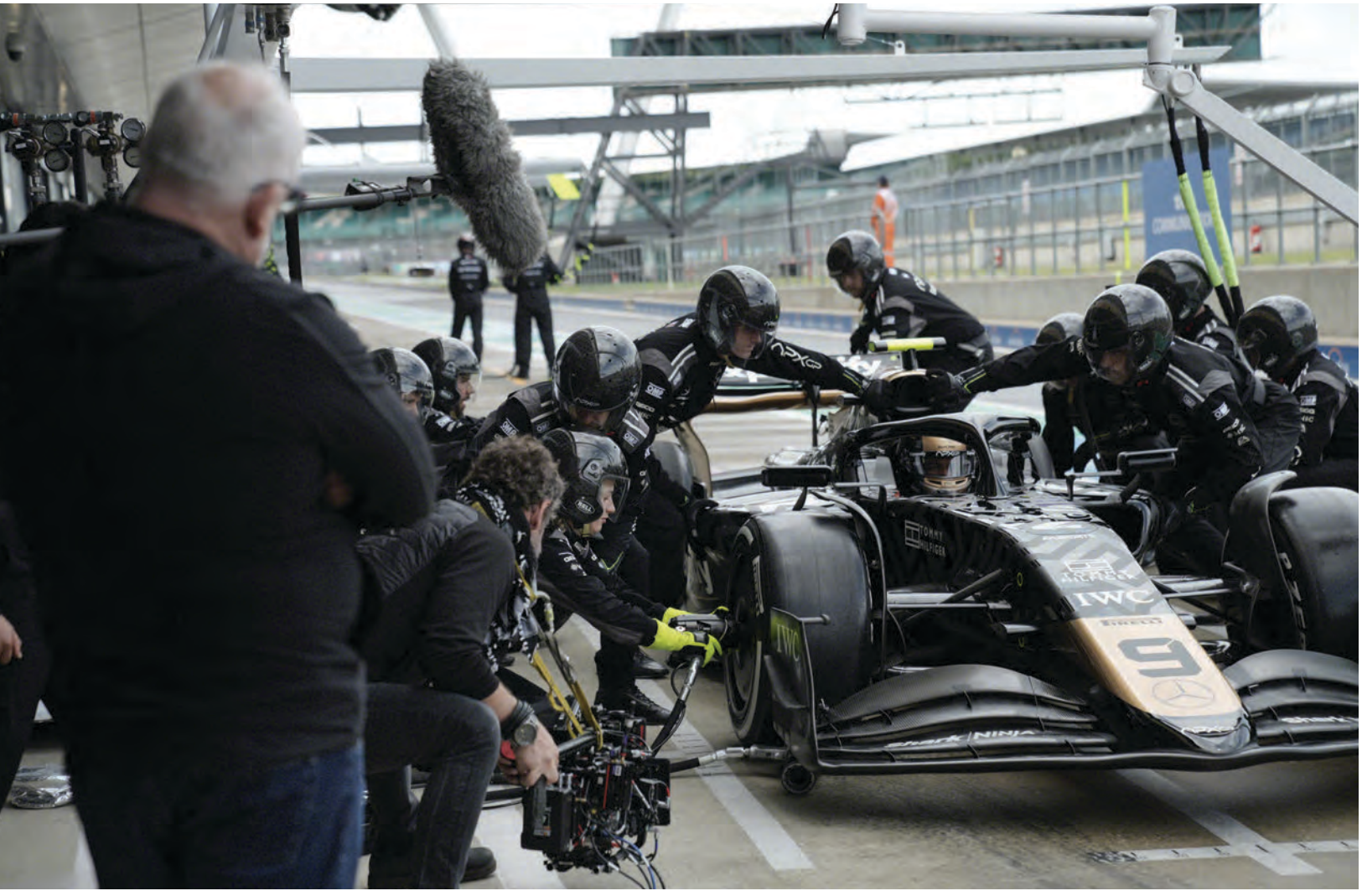
Available Light

Miranda had to work with available light at the races. For nighttime events, the tracks are commonly bathed in LED floodlights from tall towers, and the cars have rear lights and LED panels. Miranda is particularly fond of the look of the night race on the Las Vegas Strip Circuit. "Those lights are not stadium height — they're put up just for the race, 20 feet in the air," he says. "We got a much more staccato, flickering light on Brad as his car passed under them, which makes the race feel super-fast. Dedicated stadium lights are a lot farther away and don't give the same fast light change."



A schematic provided by 1st AC Dan Ming details the complex systems installed in the racecars to capture action on the tracks.

Tech Specs: 2.39:1, 1.90:1
Cameras | Sony Venice 2, FX6, custom FX6 Prototype ("Carmen"); DJI Ronin 4D; custom units with iPhone technology
Lenses | Arri/Zeiss Master Prime; Sigma FF Prime; Voigtländer; Zeiss Loxia; Sony G Master; Fujifilm/Fujinon Premier, Premista



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Above: Bielan captures a pit stop with a handheld camera. Left: Miranda (foreground), key grip Sam Phillips (holding pole-cam) and Ming (far left) coordinate the start of a race sequence.

Most races, he adds, start around 12 p.m., which he calls "DoP hell." At the British Grand Prix, the production was blessed with overcast skies. "The Abu Dhabi Grand Prix is the most interesting one because it starts about an hour before sunset and goes into twilight and then night," he reflects. "It has a great desert low light and dusk. We had to change exposures, so there was a lot of dialing and playing around with the cameras."

When Kosinski screened *F1* for actual Formula One drivers, "they loved it," Miranda reports, "but they got a little mad — jokingly — when our drivers would pass them in the movie! They were complimentary about the way we shot the movie and how it felt real, not gimmicky. That's a great testament to the job we did."

FROM THE DIRECTOR OF TOP GUN: MAVERICK
BRAD PITT DAMSON IDRIS KERRY CONDON AND JAVIER BARDEM
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Chef's Table: A Tasting Menu

Adam Bricker, ASC serves up his recipe for a foodie-favorite documentary series.

By Douglas Bankston

Inspiring culinary tales, remarkable food and sumptuous cinematography are three key ingredients that go into *Chef's Table*, the Netflix original series that dives into the stories behind the finest chefs and dishes around the globe. Since its debut in 2015, the show spans seven volumes (seasons) so far, along with occasional special-themed volumes, which have focused on *France*, *BBQ*, *Pizza*, *Noodles* and — for 2025 — *Legends*.

Hey, there's a lot of food to sample.

Behind the camera since that very first dish is Adam Bricker, ASC, a four-time ASC Award nominee (one for *Chef's Table: Pizza*, three for the series *Hacks*) and four-time Emmy Award nominee (also for one *Chef's Table* and three *Hacks*). With cinematographer Will Basanta, Bricker has crafted a high-concept, cinematic approach to the globetrotting gastro-travel series. He recently sat down with *AC* to reveal his visual recipe.

***American Cinematographer*: Your body of work is heavy in fictional television, including *Hacks* and *American Vandal*. How did you become involved with this type of nonfiction series?**

Adam Bricker, ASC: I had just started working with Brian McGinn, an executive producer on *Chef's Table*, around the time he, David Gelb and Andrew Fried were putting the show together. There was definitely a right-place-right-time aspect to it. The first project Brian and I did required a great deal of travel, and we realized we worked well together on the road. When they were selecting DPs, Brian graciously threw my hat in the ring.

They ultimately brought me and cinematographer Will Basanta [also an Emmy nominee for the show] on to develop the look. The series was inspired by David's feature documentary, *Jiro Dreams of Sushi*. The visuals were foundational for Will and me; *Jiro* is a master class in cinematic documentary filmmaking.

Opposite: Adam Bricker, ASC and director Brian McGinn film chef Ángel León's dishes at Aponiente in Cádiz, Spain. León's tasting menu is inspired by the ocean, and to bring the concept to life, the crew set up a kiddie pool in the middle of his three-Michelin-star dining room to create, as Bricker describes, a "dark-water backdrop." This page: A bird's-eye view of a table at Asma Khan's Darjeeling Express in London.

ALL IMAGES COURTESY OF NETFLIX.

Above: A macro shot captures a hand infusing olive oil with rosemary over focaccia in Chef Jamie Oliver's home kitchen in Essex, England. Below: Oliver watches the oil drizzle.

Brian and I put a small team together and traveled to Australia to shoot the pilot of what was then called *Chef's Story* in 2014. It was exciting and intimidating to put our ideas to the test in the tight confines of chef Ben Shewry's Attica kitchen. Will and I alternated episodes that first season. He's such a talented DP and he's shot some of the most beautiful episodes of the series. It's become my personal inside joke that whenever anyone references the show to me, they're usually Will's episodes.

It's true that I had very limited documentary experience at the time and had never shot food. In some ways, that naïveté led the design of the show, because I really approached it as I would a narrative project. We didn't think to rely on zoom lenses and lightweight sticks — the usual must-haves on a documentary. We imagined that *Chef's Table* could be a cinematic experience. We thought about the narrative structure, world creation, color palette. We wanted to put the same intention these chefs put into their tasting menus into our filmmaking.

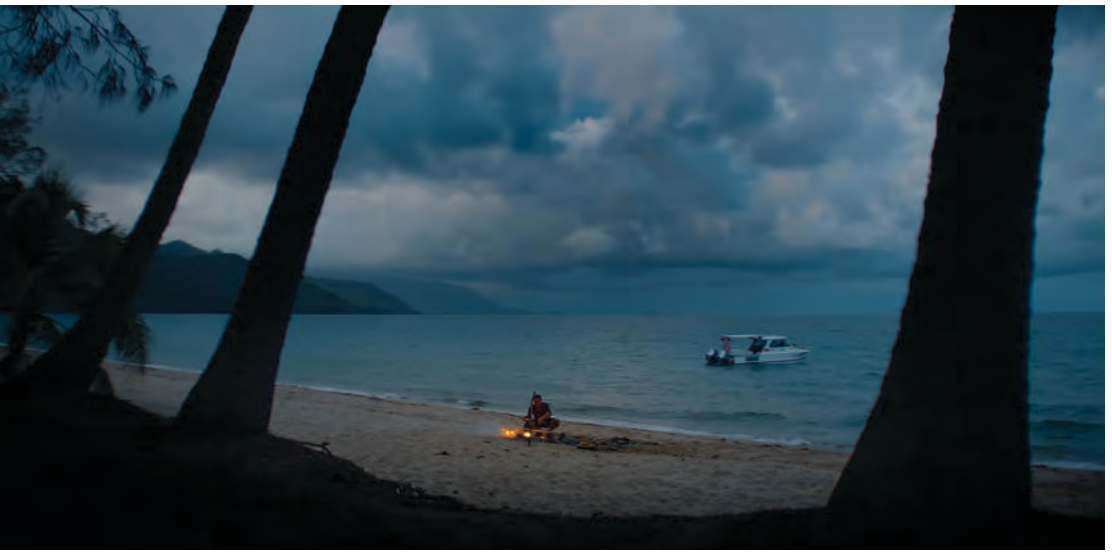
It is part documentary, part cinematic experience, much like something you'd see from, say, NFL Films.

I love that reference. NFL Films is a romantic interpretation of the sport, incredibly filmic. That approach brings you so much closer to these athletes and the beauty of what they're able to do, more than you'd ever be able to see as a spectator. That's something we always strive for with our chefs — that our visuals are heightened enough to get closer to the truth of their work.

The way you maintain a uniform look from volume to volume over 10 years is impressive. How are you able to maintain such consistency?

I think we can attribute the continuity to a few key factors. Most importantly, the *Chef's Table* crew has remained largely consistent over the last decade. Though many of us went to film school together or were friends before, we've really become a family. That we get to travel the world and eat the best food probably doesn't hurt retention, either. As time went on and Will and I could no longer shoot every episode, our camera assistants — Chloe Weaver, Charlie Panian and Alexander Paul

Above: Operator Joel Marsh moves in with an Easyrig to capture Oliver as he plates a dish. "The Easyrig has been an invaluable tool throughout the series, allowing camera operators to work in tight spaces and make quick, precise height adjustments," Bricker says. Below, left: Chef Nok Suntaranon of Kalaya in Philadelphia travels by tuk tuk in her hometown of Trang, Thailand. Below, right: Darjeeling Express chef Asma Kahn travels by train in Delhi, India.



Firedoor chef Lennox Hastie cooks over an open flame on the coast of Cairns, Australia. The team captured these sequences with Panavision G Series anamorphics to amplify the sense of adventure.

"We shot spherical for all the city and restaurant work and anamorphic when he hunted, fished and barbecued over an open flame in the wilderness."

— all went on to DP their own episodes, along with cinematographers Matthew Chavez, David Bolen and Sam Davis.

As far as style goes, we elected to shoot everything on primes instead of zooms. Not the easiest logistically, especially in these intense kitchen environments, but creatively, that choice had an enormous impact. I shot the pilot almost exclusively on a 25mm prime, which meant I needed to move with the camera to get different frame sizes and immerse myself in the flow of a working kitchen. We had to always move with intentionality instead of hanging back in a corner kicking a zoom in and out. More than anything else, I think that intentional camerawork is the show's signature.

Also, we've shot on Red from the very beginning. Even back in 2014, Netflix was already prioritizing 4K, which meant we needed a camera that could deliver on resolution but in a small body for maximum maneuverability. We shot Season 1 on the Epic Dragon 6K, eventually upgrading to the Weapon Dragon with the lightweight carbon-fiber body. We just shot our "Legends" season on the V-Raptor with its 8K VistaVision-size sensor. Red has been so supportive of the show, and it's been amazing to grow with them.

The Jamie Oliver episode of *Legends* is one of the most unique because there was so much material available to you from his being such a public figure.

Not only was there a huge amount of archival material, but it was all revolutionary work. Before Jamie came along, cooking shows were three-camera, formal kitchen sets. That he made a run-and-gun, documentary-style show shot on video, 8mm and 16mm in his own kitchen was groundbreaking from a cinematography perspective. We felt a lot of pressure to do justice to that and tell this story the right way. Ultimately, we decided to shoot large format to maximize the visual distinction between our footage and the archival, but also to honor the epic scale of Jamie's story.

The style is not formulaic — the chefs are all different, the food is different, the locations are different from episode to episode — but there is a consistent visual language and style.

Definitely. The structure evolved over the course of the first couple seasons. There's a naturally lit interview, where it feels like you're sitting across from the chef and they're talking to you. Then we'll be in the kitchen with beautiful, motivated light that respects the care our chefs put into their work. We go out into the world with the chef and call that location work "vérité." And we culminate with the food symphony, where we see all the finished dishes we just learned about with iconic title cards at the bottom.

Once that structure emerged, it allowed us to tell the stories of these chefs in a limited amount of time, usually only eight or nine shoot days per episode. Within that structure, we're always pushing ourselves to take things to the next level. Sometimes, you can break the mold entirely, and that's what's fun about working on a show for 10 years: The moments you choose to break the rules are just as important.

You described moving through the Red camera lineup over the years. Did you follow a similar trajectory with your lens choices?

We started on the Cooke S4 lenses for the first season, then switched to the Leitz Summilux-C and Summicron-C family of Super 35 primes. They were lighter, smaller and uniform in size. I'm still shooting mostly on a 25mm and then sometimes jumping to a 50mm. We quickly slide in a diopter when we want to get really tight instead of swapping to a special macro lens. We have to be ready to react, such as jumping out to get a bit wider and then

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diving back in tight on a chef's hands. We shoot at consistent, civilized stops, like a T2.8/4 split or T4, and then bump up to a T5.6 for the food macro work. The focus pullers on this show are incredible. On my most recent episodes, 1st ACs Nina Pilar Portillo, Kali Riley and Lily Taylor always kept us sharp.

Lenses are actually a good example of where we've strategically chosen to break our own rules. For the *Chef's Table: BBQ* episode with Firedoor chef Lennox Hastie [Season 1, Episode 2], we shot spherical for all the city and restaurant work and anamorphic when he hunted, fished and barbecued over an open flame in the wilderness on the coast of Cairns, Australia. We used G Series lenses from Panavision Sydney, which helped amplify that sense of adventure.

White Rabbit chef Vladimir Mukhin's mission is to revive traditional Russian cuisine, which had fallen out of the fine-dining scene decades ago. So, when we found a set of 1960s primes at a Russian rental house, we knew they'd be perfect for following his journey into the countryside north of Moscow, where many of those culinary traditions were still in practice. That episode [Episode 2, Season 3], was one of my favorite *Chef's Table* experiences. We shot some scenes on a moose farm that I feel lucky to have survived!

Top: Chef Grant Achatz's "Mat" dessert at Alinea in Chicago is a colorful, interactive dessert painted and plated directly on the table. Above: Chef Vladimir Mukhin of White Rabbit in Moscow, Russia, puts the finishing touches on a dish as a dappled key light shines through a cucoloris.

Because you are framing with your feet, what kind of camera support are you using?

The early seasons were me sweating in a hot kitchen almost entirely handheld on an Easyrig. It was the ideal tool for that — I can be at eye-level shooting the chef, make a split-second decision as they're dicing or plating, and very quickly drop to waist height.

Most of these kitchens are essentially the size of large bathrooms. But Grant Achatz's kitchen at Alinea [Season 2, Episode 1] is a massive, gorgeous, stainless-steel space. We were able to fly around in there with a Steadicam, and we just fell in love with that footage.

Soon after that episode, we were tasked with the *Chef's Table: Pastry* season [Season 4]. Brian McGinn and I headed to Sicily to do an episode on pastry chef Corrado Assenza [Episode 2]. It was going to be Corrado's love letter to this place, and we thought, "What if we do this whole episode on Steadicam?" We enlisted the wonderful operator Joel Marsh, and that was a turning point for us. It allowed us to connect one shot to another fluidly instead of relying on the edit. Still, we had to get in there for shots of the hands, and that trusty Easyrig, which has been in so many kitchens over the years, came right back out. Thankfully, it's Joel at the helm these days. His operating is so much better than mine ever was.

There is gratuitous use of slow motion.

We definitely employ it liberally.

That's why the NFL Films reference seemed appropriate — elevated, slow-motion cinematography of athletes that captures the most subtle of movements. You are doing the same, but with chefs. What frame rates are you shooting to capture this?

It's true — like pro athletes, these are the best chefs in the world. No movement in the kitchen is wasted, and their knife and tweezer work happens so fast you can't even register it at 24 frames per second. The highest we go is 96, then we would do a pass at 48, which is a great speed because it's slow motion but still has some pace. It washes over you and plays elegantly with the beautiful score. Some of my favorite moments are when we live in that slow-motion photography and then snap back to the speed of the kitchen at 24 fps. You feel that energy, the sound rushes in, and we're

Top: Traditional Russian cuisine captured on vintage primes in a Soviet-era cafeteria in Moscow. Middle and above: Mukhin prepares a traditional fish stew in the countryside north of Moscow.

"When we found a set of 1960s primes at a Russian rental house, we knew they'd be perfect for following his journey into the countryside north of Moscow, where many of those culinary traditions were still in practice."

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With the wide variety of lighting conditions, do you bring in supplemental lighting?

We need to see 360 degrees in the kitchen. I can't bring a light in on a stand. I learned early on that what's most important are the lights I'm turning off. I walk into a kitchen and start flipping switches, thinking, "What can I get rid of to make it more focused, single-source?" These are very high-end spaces that want minimal impact, so it's almost all available light. We'll make some thoughtful choices as to where they do their plating, making sure that the lighting stays soft with only one shadow, avoiding multiple sources. If I supplement, I take care not to influence the color of the dishes by staying balanced with a neutral color temperature, whether through gelling some lights or swapping out bulbs.

It's about making sure the quality of light is right. You can't fix the quality of light in a color grade, but you can fix exposure. Senior colorist Shane Reed at Mom&Pop has been with us all the way through. His work is crucial to that cohesiveness we talked about earlier and has been a big part of making the show as beautiful as it can be.

How much involvement do you have in the color grade?

Maximum. It's a top priority for Andrew, David and Brian. They make sure all the DPs are involved in coloring their episodes. Shane will do a pass that is absolutely beautiful and could go straight to Netflix, but we get time to sit with him and refine. Then the director comes in and we refine even more. It's an ideal color scenario.

That consistency makes it difficult to tell who shot what episode until the end credits roll.

I think that's great. Everything we've talked about has given the show a great recipe for consistency across 10 years and helped define our signature aesthetic.

The deliverable is in 4K, but Red's capture is now up to 8K. What is your capture mode?

Ideally, we shoot at the highest [pixel count] possible. But as a documentary series filming

Top: Marsh frames pastry chef Corrado Assenza as he forms frutta martorana at Caffè Sicilia in Noto, Sicily. This was the first time the team used Steadicam for an entire episode, "revolutionizing the show's filming process," Bricker says. Middle: Assenza's strawberry tomato granita. At left: The camera captures a top-down view of one of Assenza's cakes. "The majority of dishes in the series are lit simply, in this case by natural light streaming through a window," Bricker says.

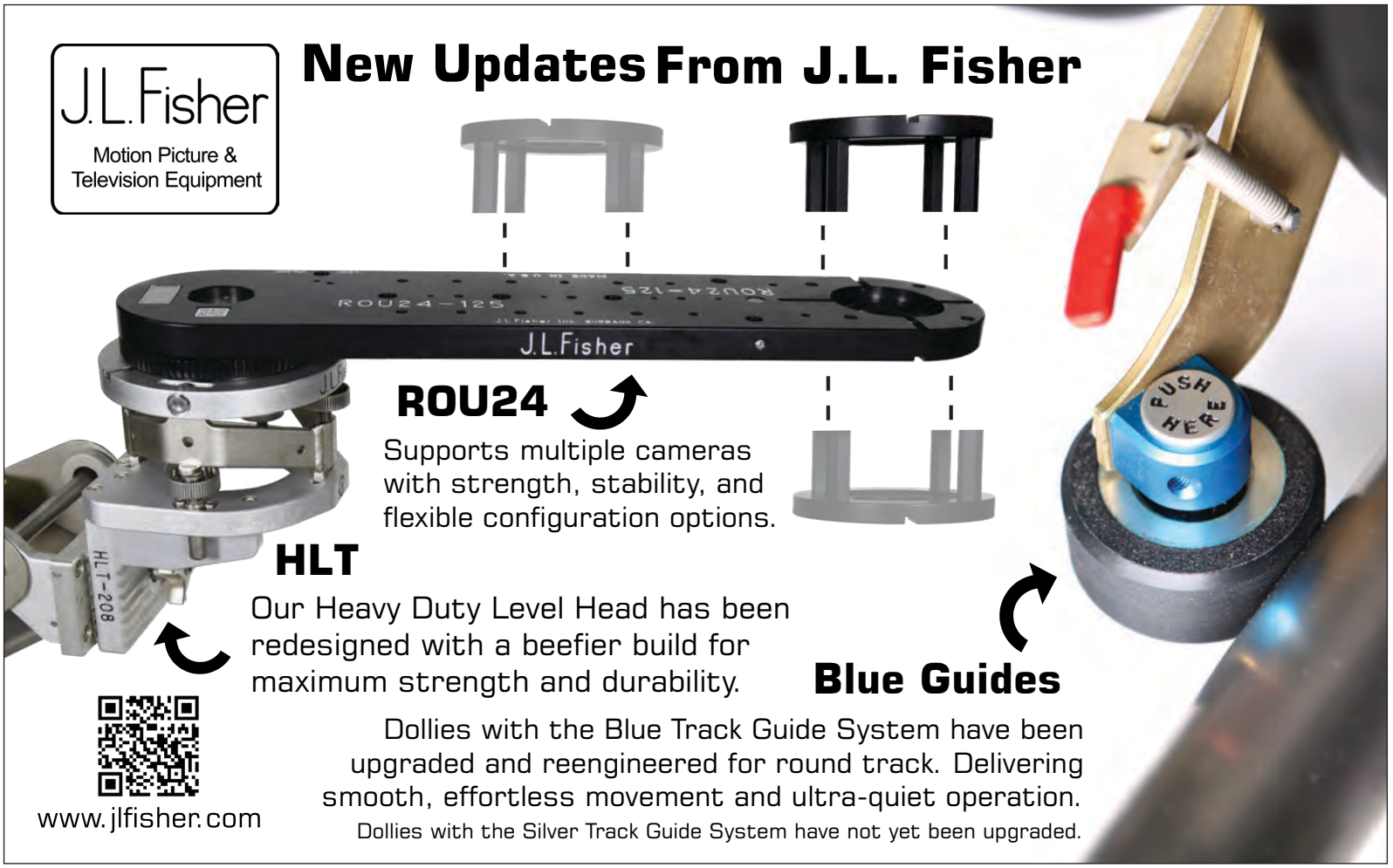
Tech Specs: 2.0:1
Cameras | Red Epic Dragon 6K, Weapon Dragon 6K, V-Raptor 8K VV
Lenses | Cooke S4 (Season 1); Leitz Summilux-C, Summicron-C; Panavision G-Series

abroad and often downloading footage overnight in hotel rooms, we have to be mindful of data rates. We opted to shoot at 5K instead of 6K, which still gave us options for reframing and stabilization. The Jamie Oliver episode was the first we captured in 8K for [full use of the sensor size]. The sensor has enormous dynamic range that we take full advantage of because we finish in HDR. Earlier seasons were finished in SDR, but the range was always there with Red's sensors. When Netflix debuted HDR, we were already a few seasons in, but Shane was able to go back through the catalog to recolor and bring everything up to the new standard.

What has been the most amazing thing you've eaten on one of these shoots?

I think my favorite was by Corrado Assenza at his Caffé Sicilia in Noto. He makes this simple yet decadent dish, a perfect brioche that you dip in his famous almond granita. I would have it for breakfast or as a snack — honestly, as many times a day as I could get away with. Sitting outside in a town square in Sicily having a granita ... It's one of the highlights of my life.

Top: Chef Will Goldfarb's "Incidente Stradale" is set among Balinese florals at Room 4 Dessert in Ubud, Bali. Bottom: Chef León's signature "Plankton Rice" photographed over rippling dark water. (See the camera setup, page 28.)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Collaborating With the Elements on *Chief of War*

Matthew Chuang, ACS details his battle plan for an epic series set in Hawaii at the turn of the 18th Century.

By Iain Marcks

The series *Chief of War* depicts the unification and colonization of Hawaii from the perspective of Ka'iana (Jason Momoa), the virtuous leader of an exiled clan.

In setting the look of the pilot, cinematographer Matthew Chuang, ACS leaned heavily into naturalism, evoking not only the lush period landscape of Hawaii, but also such films as *The New World* (shot by Emmanuel Lubezki, ASC, AMC; *AC* Jan. '06) and *Apocalypto* (Dean Semler, ASC, ACS; *AC* Jan. '07). John Toll, ASC's cinematography for the features *The*

Opposite: Exiled chief Ka'iana (Jason Momoa) reluctantly leads his clan into battle on Oahu in an attempt to unite Hawaii's warring islands. Pictured here: King Kahekili's emissaries approach Ka'iana and his kinfolk on Maui to demand his presence before the supreme leader. Below: Ka'iana and his warriors launch their attack.

IMAGES COURTESY OF APPLE.

Thin Red Line (*AC* Feb. '99), *Braveheart* (*AC* June '96) and *Legends of the Fall* (*AC* March '95) was another major influence.

Chuang also shot four subsequent episodes of the Apple TV Plus series, which involved filming on water, making extensive use of flame sources, and lighting — or not lighting — exteriors shaped by dramatic weather in some far-flung locations. (Cinematographer Michael Snyman shot Episodes 3, 4, 6 and 7.) *AC* recently spoke with Chuang about the project, which he was just beginning to prep when he was named a 2022 *AC* Rising Star of Cinematography.

***American Cinematographer*: Where were you when you received word that you were named a Rising Star, and how did you react?**

Matthew Chuang, ACS: I was in Oahu starting preproduction on *Chief of War*. I certainly felt the weight of that going into this shoot, along with the expectations of what [director] Justin Chon and [series creator/executive producer and star] Jason Momoa wanted to achieve with the series.

It's been really inspiring to see fellow DPs from the same year create amazing work since then — Jomo Fray and Catherine Goldschmidt, especially. (For the announcement of this year's *AC* Rising Stars, see page 48.)

How did you land this project?

I did the [2021] feature *Blue Bayou* with Justin, who directed the first two episodes of this show. *Chief of War* was a lot bigger in scale than anything I'd done before, and Justin and I didn't know if I'd be approved for it by the studio, but in 2022 I had shot a film in Serbia called *You Won't Be Alone*, which takes place roughly in the same time period. For that film, I used natural elements — the sun and quite a lot of firelight — and Justin wanted to go in a similar direction with this series. This is the first time a large-scale series has been made about Hawaiian history, and we wanted to depict that history accurately, showing how the native

Above: King Kahekili (Temuera Morrison, foreground) exerts his influence over Ka'iana. Pictured here: Ka'iana and his brothers, Namake (Te Kohe Tuhaka, left) and Nahi (Siua Ikale'o, right), mourn the loss of their father by burning his bones. This scene was shot with flame bars in a fire pit at sunset. Two cameras shot the sequence simultaneously and continuously for 40 minutes, with no cutting since the sun was going down, to capture all of the angles needed for coverage.

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Ka'ahumanu (Luciane Buchanan) seeks the counsel of Taula the Prophetess (Roimata Fox) on a beach.

Hawaiians lived back then.

Many scenes are set outdoors with the sun as your only source, and it's striking how you often let the actors' faces go into deep shadow or direct light.

We wanted to showcase Hawaii for Hawaii, so we didn't want to manipulate our look too much. We wanted it to feel real, but in a very cinematic way. A lot of Episodes 1 and 2 were shot on location, on the ocean, embracing the sun and the weather, shooting in all directions with quite a few cast members, so much of our preplanning was about how to schedule the day out and best utilize the sun.

Do you feel that shooting naturalistic day exteriors is harder to achieve than it looks?

It's very difficult in places like Hawaii and New Zealand because you have to embrace what the weather gives you. You might scout a location, but then that location can look completely different one or two weeks later, depending on the elements, such as the tide. We always had a plan, but that plan could shift depending on the weather; the weather and tide was constantly changing, so keeping the shots consistent was a big challenge. Our plan gave us an idea of where the sun would be and the directions we could shoot. We mostly shot backlit and sidelit, usually toward the sun, and as the sun shifted throughout the day, we shifted our blocking to follow it.

In the forests, we had 18Ks set up to fake the sun in case clouds moved in. For example, we shot the opening scene of the pilot on the ocean in Hawaii, and that day was quite sunny. With all the cast and crew and boats on the water, we couldn't diffuse or even bounce light because the water kept constantly moving us. The sun bounces off water in a complex way, but mostly I was trusting in our choice of camera and lenses. Even when we were in a place where we could actually set up lights, we were still shooting in places that haven't been shot before, so a lot of the work was figuring out how to get a telehandler on set — or if it was even possible.

Where were your locations?

The first two episodes were mostly filmed on Oahu, with a little bit of Maui. The battle on the beach of Oahu at the end of Episode 1 was actually shot in New Zealand. When I came aboard, it was all meant to be filmed in Hawaii, but production had to shift photography to New Zealand to keep things within budget. So, we shot for eight weeks in Hawaii, and quite a lot of it was for the first two episodes. In the season finale, there's a big battle on a lava field that we shot on the Big Island on a real lava field.

You mentioned trusting in your choice of camera and lenses to carry the look. Tell us more about that.

We shot the first two episodes with the [Arri] Alexa Mini LF, and then, as the series went on, we shifted to the Red V-Raptor because Jason Momoa has a really good relationship with Red. The cameras were small enough for our specialized rigs, 2nd-unit work, some of the work on the

Above: Cinematographer Matthew Chuang, ACS on location. Below: Because the production shot in some hard-to-access areas, getting large pieces of gear into place could be difficult.

water and underwater. Our slow-motion work was mostly done with the Red V-Raptor, and during the battle scene we used a Phantom 4K. The entire time, we used Panavision T Series anamorphic lenses modified by [ASC associate member and Panavision senior vice president of optical engineering and lens strategy] Dan Sasaki. I'm a big fan of the Panavision C Series lenses and wanted a similar look.

What do you appreciate about C Series lenses?

They're quite painterly in how they render landscapes and faces, and 2.39:1 was a frame that worked well for us, but we needed Apple Studios to sign off on it because they don't really do television series in the 2.39 aspect ratio. With their streaming requirements mandating 4K at minimum, we couldn't shoot on the Alexa

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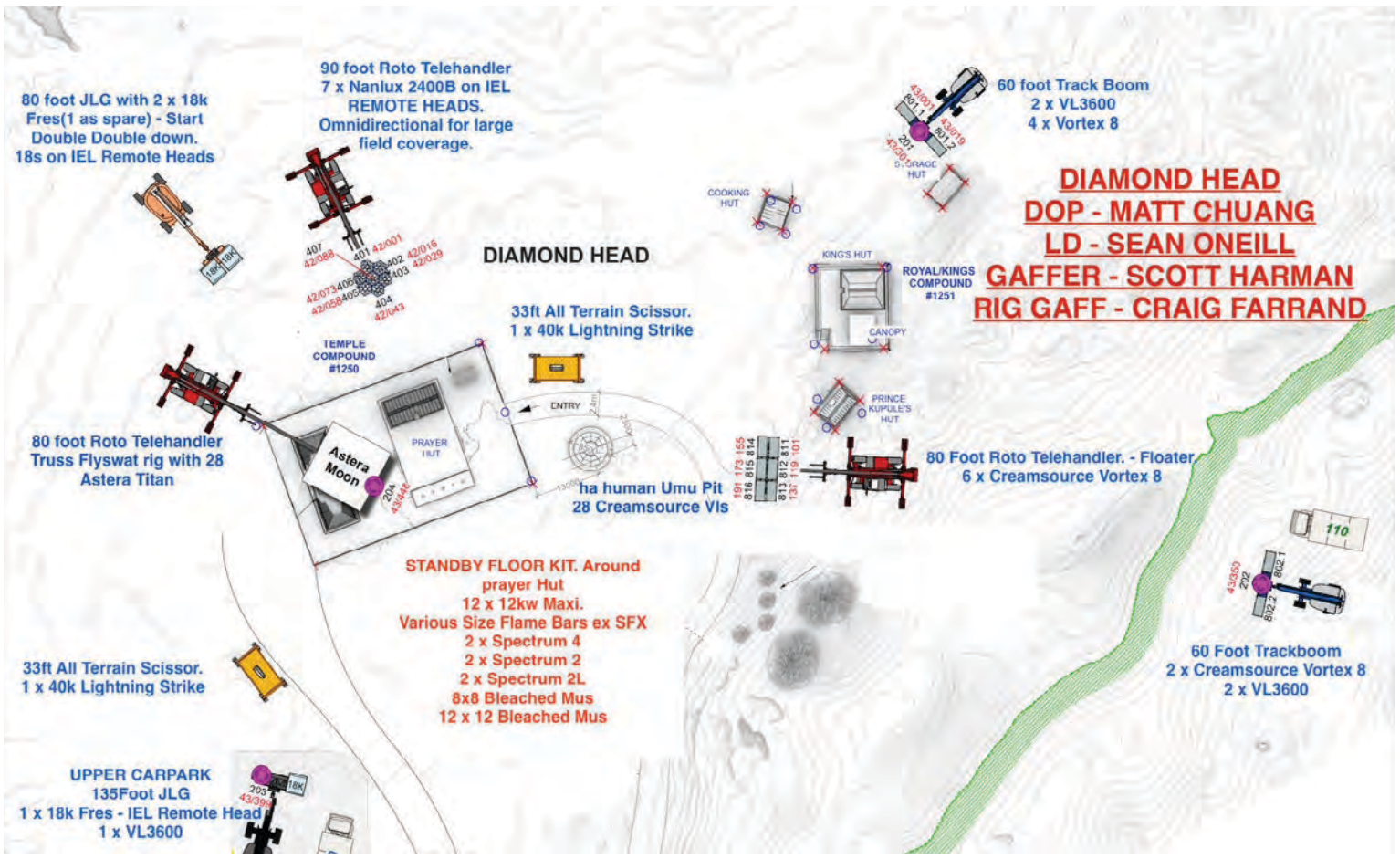
35 at the time because it came [in below] the streaming requirements for 2.39 anamorphic. Working with Dan Sasaki and Panavision's marketing director, [ASC associate member] Mike Carter, we went full frame with the Mini LF and Red V-Raptor, and the T Series lenses were modified more toward a C Series feeling. We pushed them more toward the look we were after, with increased spherical aberrations.

The C Series lenses weren't available for all the different units we had, and the T Series build is a lot smaller, so we could do more with them, like use a 100mm lens for Steadicam work.

How did the T Series lenses look?

They looked amazing, especially after Dan modified them. In this series, our wides are quite wide, and then we do go quite long when



Diagrams detail night-exterior lighting setups for the climax of Episode 1 at a Diamond Head temple. Below: A shot from the sequence, in which Ka'iana confronts his king.

it comes to close-ups. Our main lens was the 100mm — which, in full-frame 1.85x anamorphic, comes closer to a 35mm-size flat 55mm lens — and we also had anamorphic zooms that we used quite a lot for B camera.

Did you shoot wide open?

I shot T4.5 to wide open, especially for day exteriors, where we were constantly changing the aperture to keep exposure consistent.

How were you rating the cameras?

We actually rated them at 1,600 for a lot of the series, even day exteriors, because it gave us a little more detail in the highlights and also added a bit of grain and texture to the image. We added a bit more grain in post, anyway.

How heavy were your NDs?

Mostly 2.1 [7 stops].

Fire plays such a key role in the visual storytelling. What was your approach for making fire look good on camera, as well as using it as a practical source?

We used quite a lot of fire within our scenes, and if we were shooting a night exterior on location or onstage — which we did quite a bit later on — and we had real fire in frame, we had to expose for it without blowing out, so we set up lamps on the side. I found that we needed quite a lot of fake moonlight to have more definition in the background and balance out the exposure for the fire. We would light from

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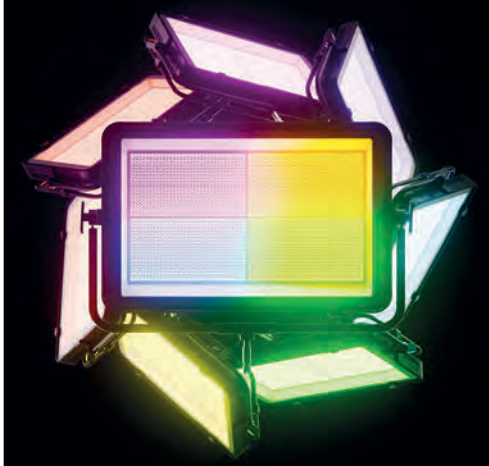

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Tech Specs: 2.39:1
Cameras | Alexa Mini LF; Red V-Raptor, Komodo; Phantom 4K
Lenses | Panavision T Series, anamorphic zoom

After falling off a cliff while fighting King Kahekili's men, Ka'iana is rescued at sea by the crew of the *Nootka*, which is already en route to the Philippines city of Zamboanga — where he learns about trade and weapons such as pistols, rifles and cannons. Ka'iana eventually reunites with his clan in Hawaii and prepares to join forces with another warrior, Kamehameha (played by Kaina Makua) to battle the king's forces, armed with a newly acquired arsenal of modern weaponry.

above, depending on the space we needed to light, using an 80-foot roto telehandler with six Arri S360-Cs on remote heads for omni direction; a 60-foot track boom with four Creamsource Vortex8s; an 80-foot roto telehandler truss flyswatter with 28 Astera Titans; and a 90-foot roto telehandler with seven Nanlux 2400Bs on remote heads. Sometimes all units were running simultaneously.

In the pilot, Ka'iana's family is discussing whether they should accept the call to war of King Kahekili (Temuera Morrison) against the kingdom of Oahu. The scene involves five characters gathered around a fire, and the character who is listening to it all, Heke [Mainei Kinimaka], is closest to the fire. We always had the plan to shoot through the fire to see the flames licking around her face, but once we exposed the fire properly, depending on how much we were pushing to see in the background,

Star and executive producer Momoa, alongside 2nd-unit director and stunt coordinator Jon Valera, likes what he sees on a monitor.

we had to bring in more moonlight. We had flame bars to light the characters when the fire wasn't in frame, just to get a natural flickering effect. Sometimes we used a Creamsource Vortex8 or an Arri SkyPanel S60 to help enhance the background.

How did you augment the firelight to get those rich exposures?

Even if the subject you're lighting is one or two meters away from the source, you're blowing out all the flame detail. We had flame bars just off frame so we could pump our exposure up. That's like the other big night scene at the end of the first episode, where Kahekili sacks the temple on Oahu. We had a lot of support lights on hills and suspended above them from cranes. We used a lot of firelight and flame bars to enhance that scene, as well as 28 Creamsource Vortex8s underneath the fire pit with all the dead bodies. When we added SFX smoke, it looked like the dead bodies were burning. We had flame bars and supporting practical fires in the foreground. Farther away in the background, on hills, we had cranes set up to help provide the moonlight. [See diagrams and photos, pages 44 and 45.]

Was all the filming on water done on location?

For Episode 1, yes, and we had a really great, Hawaii-based water-support team led by [producer] Brian Keaulana, who set us up with a barge for a 45-foot Scorpio crane and Libra head; he also had a crew driving us around on Jet Skis while we shot handheld.

Did Brian use his own operators on those watercrafts? That sounds like a specialized skill.

It was my camera team. Jason Ellson was our A-camera and Steadicam operator for both Hawaii and New Zealand. Josh Medak was our B-camera operator in Hawaii, and both of them would get on the Jet Skis with Easyrigs, or one would be on the boat or the barge with the crane while the other one was on the jet ski.

Were the cameras in housings or wrapped in splash bags?

On the water, we just trusted Brian's team to support us, and once the camera was underwater, then, obviously, it was in a proper housing. In general, though, we tried to strip everything back. This series is on such a big scale, but Justin and I approached it like an indie film in quite a lot of ways. We had the full crew and a lot more toys, but we also wanted to maintain, I guess, that sense of freedom as well — to be able to shift depending on what the weather was or if we had new ideas based on our instincts at any given moment. Each day, we'd look at the weather, look at the amount of stuff we had to shoot, and say, "Okay, what's the most creative and effective way to shoot this?" We had a really great crew who were onboard with that.

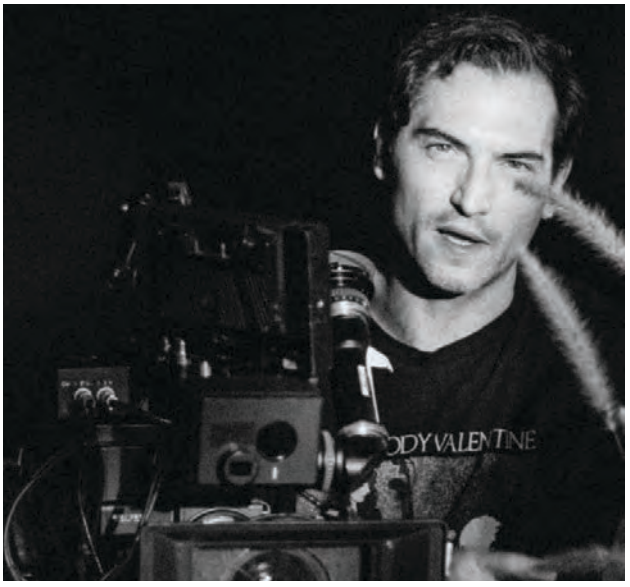
2025 Rising Stars of Cinematography

Eight Emerging Talents

AC spotlights up-and-coming artists working behind the camera.

By Tara Sanders Brooks

This year marks *American Cinematographer*'s ninth annual Rising Stars of Cinematography roster. Selected by a committee of ASC members, as well as magazine staff, these new talents join the ranks of Rising Stars alumni as artists to watch. Mia Cioffi Henry, Olan Collardy, Tehillah De Castro, Shady Hanna, James Rhodes, John Rosario, Sarah Whelden and Joshua Zucker-Pluda all bring their unique life experiences and perspectives to their work as cinematographers, lending nuance and heart to the projects they tackle. *AC* shares their stories on the following pages.



"I grew up surrounded by equipment, lights and copies of *American Cinematographer*."

MIA CIOFFI HENRY

A multifaceted artist from a young age, Cioffi Henry pursued both acting and dance during her early years, and she feels that those artistic pursuits eventually informed her work as a cinematographer. "Having experienced that sense of space and performance, and the need to connect with an audience, led me to a strong interest in story, characters and connections, as well as the humanity of filmmaking. All else is in support of that."

Cioffi Henry studied production design at California's Pitzer College as an undergraduate, finding her way to cinematography when film-major friends began asking her to hold their camera. Feeling at home in that role, she discovered her calling and turned to her father, a Washington, D.C.-based documentary cinematographer, for advice. "I grew up surrounded by equipment, lights and copies of *American Cinematographer*. My dad still gifts me an annual subscription!" Following his suggestion, Cioffi Henry found a job at the Los Angeles-based rental house Birns & Sawyer, where she "fell in love with the mechanical process of celluloid. I loved the collaborative effort of making a film; it felt like putting on a play."

Shortly after, Cioffi Henry moved to New York and started working on set in whatever jobs she could find. Eventually, she moved into the art department and spent time as an on-set dresser. "It was amazing training," she says. "Being near the director and DP, I learned a great deal about composition, texture and color. I learned what a foreground element was and how to move the camera."

Cioffi Henry says that she truly knew she was a cinematographer while she was studying for her MFA at New York University. Still, she remains grateful for the extensive knowledge of other departments that she brings to her work. "I think one of my greatest strengths is being able to speak fluent 'costumes' or 'sets' with the designers, as well as budget and line items to producers. If you can communicate in everyone's specific language," she asserts, "you're better able to 'serve the project.'"

Now an associate arts professor at NYU, Cioffi Henry teaches cinematography in the graduate program as the head of cinematography. She is inspired by artists such as Edward Hopper, William Eggleston and Carie Mae Weems, and urges her students to find inspiration through diverse sources, not just the medium of film.

Cioffi Henry is especially proud of her early work on the music video for Mitski's "Washing Machine Heart," which allowed her to explore her "fascination with hard light. There's less space or context to lean into that these days."

Cioffi Henry has shot the feature films *The Surrogate*, directed by Jeremy Hersh, which premiered at SXSW in 2020, and *Superior*, directed by Erin Vassilopoulos, which debuted at the Sundance Film Festival in 2021. Her most recent feature, Eva Victor's *Sorry, Baby*, premiered earlier this year at Sundance, where it was acquired for worldwide distribution by A24. *Sorry, Baby* was also the closing film of the Director's Fortnight section at the Cannes Film Festival in May, and had its theatrical release in late June.

The cinematographer's documentary work includes the feature *Invisible Beauty*, directed by Frédéric Tcheng and Bethann Hardison, which premiered at Sundance in 2023, and she is currently at work on a documentary about the life of legendary Pulitzer Prize-winning investigative reporter Seymour Hersh. The latter project, directed by Laura Poitras and Mark Obenhaus, is set to premiere at the 2025 Venice Film Festival.

OLAN COLLARDY

Collardy immigrated to the U.K. from Nigeria when he was 15. Despite his childhood love of the arts, he intended to follow a more traditional academic path. After studying computer science at University College London, he worked at Lehman Brothers and then Goldman Sachs until he quit in 2019 to become a full-time cinematographer.

"The film industry was something I stumbled into," Collardy admits. His career path began in 2011 when he bought a Canon 550D. "What started out as a hobby spiraled into an obsession. I lost my dad, and it became something that diverted my attention away from the grief. I was able to channel that into this new passion."

Collardy's work on director Thea Gajic's 2016 short *Run* became a turning point in his trajectory toward filmmaking. The film won the Sundance Ignite "What's Next" Challenge, which he describes as "a seminal point in my career, when I felt like people saw me as someone who made things that were good." A music video he shot in 2018 led to Collardy getting an agent, and he realized that he could leave finance to pursue filmmaking fulltime, "which was a bit bonkers to everyone around me. But to me, it gave my life more purpose and drive."

Collardy admits he "didn't even know cinematography was a job title until 2013 or 2014. I had no access to people I could email, or pick up a phone and call." He cites Shane Hurlbut, ASC as his first mentor; through Hurlbut's online presence in various forums, where the veteran cinematographer provides tips and counsel to aspiring cinematographers, Collardy gained his first insights into the world of camerawork. Around 2014, he says, "I was part of a small online mentoring community called 'Shane's Inner Circle' for a few years, and it was through this community that I had access to Shane's knowledge and process and could ask him questions. The mentoring group used Facebook as a platform."

Collardy has since taken it upon himself to mentor others, bringing younger cinematographers on set to shadow him whenever possible. He also leads monthly Zoom meetings for his cohort of mentees, and over the last three years has taught "Perspectives in Light" at the National Film and Television School in the U.K. "It's an in-person workshop day of teaching," he says. "I work with the students to light a scene on a set on their main stage. The idea is for the students to work directly with the DoP and act as crew so they can understand how you might approach lighting a scene, blocking, and so on." Collardy is passionate about education and helping other filmmakers find their voice, proclaiming, "I love that there is no one, singular way to make art, and I want to be a beacon for others to show that you can find your own way."

In the past three years, Collardy has shot three critically acclaimed films. His debut feature, Raine Allen Miller's *Rye Lane*, premiered at Sundance in 2023; his second, Sasha Nathwani's *Last Swim*, won the Crystal Bear for Best Film at Berlinale in 2024; and for his third, Collardy teamed up again with Gajic, his *Run* collaborator, on *Surviving Earth*, which premiered at SXSW this year. Looking forward to the projects in his future, Collardy defines the critical components of filmmaking as "one, educating people; two, changing culture; and three, self-expression. Any project that does all three of those, I would call a success."

"I love that there is no one, singular way to make art."

"I was enamored with the idea of everything that goes into making a film happen."

TEHILLAH DE CASTRO

When she was a child, De Castro and her parents emigrated from the Philippines to California; she was always visually minded, painting and drawing throughout her youth and watching as many films as possible with her family. During her high-school years, De Castro's father encouraged her to explore a variety of college majors, so she toured Orange, California's Chapman University, the school she eventually attended. "I had no idea what a film set even looked like at the time, but I was enamored with the idea of everything that goes into making a film happen."

During her first year at Chapman, De Castro discovered the lighting department and pursued cinematography. She credits one of her professors, ASC member Johnny Jensen, for his pivotal mentorship, recounting how "he not only taught from a very technical lens, but also a romantic lens. There was a fearlessness that he taught his students to have. He encouraged us to break the rules of filmmaking, and I really took that to heart."

Filmmakers Mike de Leon, Lino Brocka and Hirokazu Kore-eda are particularly inspiring to De Castro. She describes their bodies of work as "very microscopic in how they perceive daily life," which has led De Castro to realize "the little things we do that are sometimes overlooked can really resonate with other people. Their work has made me a really sensitive filmmaker."

After graduating from film school, De Castro discovered that the cinematographers she most admired were shooting on film. Although she had no experience working in the medium, she taught herself by "shooting everything on film, using every single penny in my savings account. On every music video or spec commercial, I would say, 'We have 400 feet, what can we make?' I did everything I could to maximize my experience on film."

De Castro's first feature film, *Tahara*, directed by Olivia Peace, premiered at Slamdance in 2020. The cinematographer's self-starting attitude led to her second feature, *How to Blow Up a Pipeline*, a collaboration with director Daniel Goldhaber that premiered at the Toronto International Film Festival in 2022 and was quickly acquired by Neon. De Castro had initially met Goldhaber while day-playing as an electrician on his first feature. When he was searching for a cinematographer to shoot his second feature, Goldhaber was adamant about finding someone who could shoot on 16mm. De Castro recalls, "Daniel spoke to a few folks, and my name came up. He remembered me from his first feature and reached out."

De Castro's work on shorts can be seen in Natalie Jasmine Harris' *Grace*, which premiered at Sundance in 2024, and Karina Dandashi's *Baba I'm Fine*, which played at SXSW this year. She is especially passionate about her work on the short *Trokas Duras*, directed by Jazmin Garcia, which highlights the stories of migrant workers; the film earned a 2025 Sundance Jury Award.

At press time, De Castro was working as part of the splinter unit for Marcell Rév, ASC, HCA on the HBO series *Euphoria*. She reports that "the way he's pushed me and let me spread my wings has instilled confidence and affirmed my path as a cinematographer."

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"I'm drawn to projects that ask something of me emotionally, not just technically."

SHADY HANNA

Hanna traces his love for filmmaking back to watching cartoons in his early years. His family emigrated from Egypt to Canada right before he entered high school, and film became a way to escape when connecting with people proved difficult. Hanna found himself drawn to auteurs with bold voices, including Terrence Malick, Paul Thomas Anderson, Stanley Kubrick and David Lynch. "I was drawn to auteur cinema because those films said a lot without saying too much," he notes. "I liked leaving with more questions than answers. They challenged me and taught me how much intention can be packed into silence, stillness or subtle movement. That's something I still chase with the camera."

As he evolved into a cinephile, Hanna also took every opportunity he could to shoot school club events on his Canon T2i. "Filming school events gave me the first taste of what it meant to translate feeling into image. It made the process feel real."

Early on, before he had access to mentors in person, "I found them online," he says. "Vimeo's staff picks felt like a film school. Watching people make personal, cinematic work with limited gear made image-making feel possible. That was my way in."

After graduating from York University, Hanna jumped into shooting documentaries and music videos. He considers his big break to be a Toyota commercial for the Tokyo Olympics, which he shot during the Covid pandemic. The strict two-week quarantine meant production was having a difficult time finding a cinematographer for the one-day shoot, but for Hanna, "it was a no-brainer. That project pushed me out of my comfort zone creatively and logistically. The crew was bigger than any I'd worked with before, and I spent the quarantine staying up all night prepping. That shoot felt like the start of everything for me."

Since then, Hanna has garnered two award nominations from the Canadian Society of Cinematographers, for his work on the narrative short *Junglefowl*, directed by Kalainithan Kalaichelvan, and the documentary feature *Swan Song*, directed by Chelsea McMullan. He also feels gratified by his work on a commercial for SickKids Foundation in Ontario, Canada, directed by Clément Durou, who partners with Pierre Dupaquier as half of the filmmaking duo We Are From L.A. In May, the spot won a Gold Lion at Cannes. "It was a very rewarding experience, because I was able to spend a significant amount of time prepping and getting to know the ideas, and I'm proud of how it all came together. It's a reminder to pour as much time and effort into everything as I did on that project."

When Hanna is picking a production to pursue, everything comes back to emotion. "I'm drawn to projects that ask something of me emotionally, not just technically," he says. "I want the images to feel honest and lived-in, like they belong to the world of the story, not just the frame. I usually know it's right when the story stays with me after I read it. From there, I lean on what I've picked up in prep, and I let instinct guide how I approach the image. The goal is always to make something that feels inevitable, like it couldn't have been shot any other way — not because it's perfect, but because it's true."

JAMES RHODES

Growing up in Nottingham, England, Rhodes laid the foundations of his film intuitions at a young age, renting movies routinely on Sunday afternoons after his morning grassroots football matches. He later studied visual communication at Leeds College of Art, where, while shooting a "Straight8"-style project on MiniDV for the program's film module, Rhodes discovered he "had a surprising gut instinct for where to put the camera, and when to cut and move it for the next shot."

While pursuing his interests as a musician, Rhodes started to cut his teeth as a cameraperson by shooting live-performance videos for musicians and bands in Leeds — a pursuit that led to commissions from record labels and later to the concert and performance films he shoots today. Noting the parallels between music and his narrative cinematography, he muses, "There's an uncanny likeness between performing in a band and operating a camera in a scene with an actor. My sensitivity to an actor's behavior, energy and tempo informs the behavior of my camera, just as it used to [inform] my bass playing."

Much of his early inspiration stemmed from the visual iconography of music culture, especially that of the White Stripes; these days, a broader spectrum of photo books influence his work. Finding and sharing books to reference has been a recent passion Rhodes pursues via his Instagram page "The Cinematographer's Archive," which he started with his friend Jordan Buck as "a place where DPs could share books with DPs."

Rhodes believes his work on the short film *Femme*, directed by Sam H. Freeman and Ng Choon Ping, really began to unlock projects for him. During the Covid pandemic, he'd gotten a call from friend and fellow cinematographer Molly Manning Walker, who told him she was unable to shoot the short and that she'd recommended him for the job. Rhodes accepted the gig, and *Femme* went on to win Best British Short at the 2021 British Independent Film Awards; it was also nominated for a BAFTA Award, a Short Film Award at the London Film Festival, and the SXSW Grand Jury Award for Narrative Short.

The short's success led BBC Film to finance a feature-length version that bowed at the 2023 Berlinale and went on to win a slew of awards, as well as a nod for Best Cinematography at the 2023 British Independent Film Awards. Rhodes reflects, "Films like *Femme* are the dream. There was a lot of freedom to get into a creative flow state and really make work that was exciting and meaningful. Whenever I read a script, I ask myself, 'Where are the dials to stress the audience?' — because those are the types of films I walk away from feeling like I really experienced something, such as *Black Swan* or *Uncut Gems*. A dream project for me is one that has both a physical and an emotional effect on the audience."

Rhodes feels his friends in the cinematography realm have had a huge influence on his career and ethos as an artist. "They've really pushed me to grow, and they've helped me along the way with opportunities. [ASC members] Eben Bolter and Catherine Goldschmidt have both brought me onto tentpole studio productions over the years, which has given me access to learn a lot about understanding a bigger system."

Rhodes' musical background has bolstered major projects like the 2022 CBS special *Adele: One Night Only*, which won five Emmys, and *Elton John Live: Farewell From Dodgers Stadium*, which won three in 2023.

At press time, Rhodes was participating in postproduction on the Amazon TV series *Malice* and the feature *California Schemin'* (actor James McAvoy's directorial debut) while also shooting a feature-length finale for the Netflix series *Heartstopper* with director Wash Westmoreland.

"A dream project for me is one that has both a physical and an emotional effect on the audience."

"When I work with a director, I have a very simple phrase I print out and stick to the wall: 'Courage Over Coverage.' When we walk into the room every day, we look at that and use it as motivation."

JOHN ROSARIO

Rosario's parents emigrated from the Dominican Republic to Brooklyn before he was born. The cinematographer speaks English, Spanish and Italian, and holds dual citizenship in the U.S. and Italy. As a first-generation American, Rosario was instilled with the idea that finding a lucrative job was all that mattered; he remembers going through a list of possible careers that included civil engineering, which prompted him to think, "That seems like something that pays well." After he began his engineering studies, however, a friend asked Rosario if he could see himself being happy with the choice, and "that very simple question destabilized my entire foundation."

After abandoning engineering, Rosario decided to study film, where he discovered his affinity for camerawork. He eventually dropped out of film school as well, in order to pursue opportunities in the entertainment industry. The cinematographer cites both decisions as pivotal moments in his growth and career. Rosario began traveling the country shooting music videos, but the taxing schedule eventually wore him down, and he realized he "needed to make a decision to preserve this thing that I love."

Rosario opted to focus exclusively on shooting narrative projects. After several years, he became determined to work only on projects with scripts that really spoke to him. "I've read many scripts that just had no heart in them. The first thing for me is the story. Then I look up the director who's involved, and if they have a certain style and taste that I align with, that's even better. Directors who have a distinctive voice, a great script and vision, and who want to make bold swings, excite me."

His international viewpoint, he says, is inspired by "the accumulation of the projects I've worked on, both the good and bad; the films I watch from around the world; and the fact that I speak three languages."

He adds, "When I work with a director, I have a very simple phrase I print out and stick to the wall: 'Courage Over Coverage.' When we walk into the room every day, we look at that and use it as motivation. I see it as a missed opportunity to cover a scene merely for the sake of coverage. I aim to build a visual language rooted in philosophy and psychology, layering subtext and subtlety to enrich the emotional and intellectual experience of the film."

Rosario's work on the short *Kirk Gibson Ceremonial First Pitch* won a Los Angeles Area Emmy Award in 2019. Since then, he has shot the feature *Son of the South*, directed by Barry Alexander Brown; *A Lot of Nothing*, directed by Mo McRae, which premiered at SXSW in 2022; and *Bob Trevino Likes It*, directed by Tracie Laymon, which premiered at SXSW in 2024, where it won the Narrative Feature Grand Jury Award and the Audience Award for Best Narrative Feature.

The cinematographer is grateful for the mentorship he's received from ASC member John Simmons, with whom he's engaged in "many conversations about life and art. He's a photographer and painter, and so am I. We don't even talk about cinematography all the time. What I appreciate is just ingesting his life experiences as an artist."

At press time, Rosario was prepping to shoot the feature *The Pirate King*, directed by Josh Plasse.

SARAH WHELDEN

Whelden grew up on Nantucket Island in Massachusetts, very detached from the film industry. Her first foray into photographic art was in fifth grade, when her class took a field trip to Washington, D.C. and brought along disposable cameras. She remembers deciding to take pictures "at a 45-degree angle because that would be different. I did it, and the pictures were bad; everyone else's were better. But there was something about the control of the image that I really fell in love with."

Later, as a student at Hampshire College, Whelden studied film primarily from a documentary-based perspective. In 2009, she experienced her big break when the Portland, Oregon production company Funnelbox came to shoot a commercial at the ice-cream shop where she worked. Whelden approached the executive producer and soon began an unpaid internship, which enabled her to "observe some of Portland's best DPs, who were coming in and shooting commercials for us. I learned to think outside the box, work with smaller budgets and find ways to say yes to the directors."

Whelden eventually joined the production company's staff and started editing as well as operating B cam on some commercials. By the time she left the company in 2015, she'd started shooting mid-level commercials. In 2021, Whelden was accepted into the ASC Vision Mentorship Program, and she vividly remembers one particular meeting with her mentor, Society member Polly Morgan. "We had a conversation that lasted maybe 45 minutes, and by the end of it I had decided to move to L.A. Within two months, I was there. As a kid, I used to be a dreamer, but I'd worked myself out of that somehow. When I moved, I finally stepped back into that mindset."

In 2023, through a Netflix/Women in Film Fellowship, Whelden was able to learn from two cinematographers she greatly admires: Sandra Valde-Hansen, ASC and Alison Kelly. Whelden is also inspired by her wife, Kelly Wilcox, who is "a production designer and also, by far, my biggest supporter. On the same day I found out I'd been named one of the magazine's Rising Stars, I won the Altitude Award at a Women in Media event, and she accepted the award for me while I was shooting a pilot in NYC."

Whelden's work on the short *Tight*, directed by Jessica Barr, helped the project earn a 2024 Grand Jury Award nomination at SXSW, and so far, 2025 has been a banner year for the cinematographer. *Magic Hour*, a feature she shot for director Katie Aselton, premiered at SXSW; *Sweet Talkin' Guy*, a short she worked on with directors Miss Dylan and Spencer Wardwell, was nominated for the Short Film Grand Jury Prize at Sundance; and *Safe*, a short she shot for Alex Kaplan, premiered at Slamdance.

Lately, Whelden has been thinking about the responsibilities facing cinematographers in the current era. She reflects, "I'm really inspired right now to create work that is raw and fearless — that embraces its humanity to connect us all through the ancient art of storytelling. I want to help shift culture, both through the films I am a part of and through my own visibility as a woman and trans person living in my power. I didn't grow up knowing what a cinematographer was, and by the time I started to understand the job, I certainly didn't see anyone who looked like me. With cinematographers experiencing more visibility than ever, I hope to show the next generation that this is a role for anyone."

"I'm really inspired right now to create work that is raw and fearless."

"My approach to cinematography is rooted in my background in fine art, photography and music — especially the ethics and values of the hardcore punk scene."

JOSHUA ZUCKER-PLUDA

An artist of both breadth and depth, Zucker-Pluda pulls from a deep well of diverse creative experiences, particularly those of his early years. "My approach to cinematography is rooted in my background in fine art, photography, and music — especially the ethics and values of the hardcore punk scene. I think that my layered, multidisciplinary foundation really sets me apart — it's where my voice as a DP comes from."

Zucker-Pluda pursued his BFA in film production at New York University, minoring in cinema studies and comparative literature. After graduating, he worked for the video artist Doug Aitken — all while actively touring the world in various bands. "The punk scene is about self-reliance," he explains. "It's about sincerity, authenticity and resilience. That ethos really informed who I became as an artist, and being in bands taught me how to collaborate and share a space with a variety of creative voices."

While working as a director — shooting and editing his own projects, including commercials, music videos and documentaries — he met cinematographer Pete Konczal, ASC, who encouraged him to focus on cinematography and apply to the American Film Institute (AFI).

Zucker-Pluda says his time at AFI "changed everything. It was such a gift to take two years out of my life and focus so specifically on the craft of cinematography." He feels indebted to his AFI mentors, who included Stephen Lighthill, ASC; Bill Dill, ASC; and Tal Lazar. He's especially grateful for the relationships and camaraderie of his AFI peers Todd Banhazl, ASC; Ava Berkofsky, ASC; Lauren Guiteras; and Jake Magee. "They've all had a meaningful impact on how I think about storytelling, collaboration, and the emotional core of an image."

Still active as a musician, Zucker-Pluda says he enjoys the balance he finds by pursuing projects that combine music and cinematography. He shot several of Metallica's iconic videos, including *Screaming Suicide*, which was selected for the 2023 Music Video Competition at the Camerimage cinematography festival. Zucker-Pluda describes that video as "the most pure example of who I am as a cinematographer — I set out to create something visceral, multilayered and textural, and for that to be recognized is immensely gratifying. It encouraged me to lean into taking big swings and embrace my own creative voice."

He recently returned from SXSW, where his short film *Good Time Charlie*, directed by David Black, was nominated for the Grand Jury Award. Zucker-Pluda's work includes Laurie Anderson's experimental documentary *Heart of a Dog*; 2nd-unit cinematography on the sci-fi miniseries *Devs*, directed by Alex Garland; commercials for Shiseido; and music videos for artists such as Doja Cat, Kali Uchis and Deafheaven. Looking ahead, he's preparing to shoot a feature later this year and remains focused on pushing creative boundaries in both commercial and narrative work.

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Top: The Freelensing Cine mounted to a Red V-Raptor [X] VV and paired with a vintage Petzval lens. Bottom: IB/E Optics' Raptor Scope with the unit's proprietary lens — in this case, a 35mm.

Specialized cinematography often requires extensive rigging and sometimes cumbersome tools. But nothing compares to the thrill of capturing multi-plane, multi-move, multi-subject, close-focus, "impossible to get" shots *in camera*. Two products have hit the market that help the cinematographer do just that: the Freelensing Cine and the Raptor Scope.

Freelensing Cine

Though a variety of tilt-shift or swing-shift bellows systems and all-in-one tilt-shift lens options have been available for some time, they have required large-format still lenses with extremely large image circles to work. When Madrid-based cinematographer Sergio de Uña Jaime, AEC began shooting with Red Digital Cinema's Monstro 8K VV sensor, he found that none of the existing options quite gave him the creative framing he was looking for, especially on commercials.

"The client or maybe the director would say, 'Hey, I want to see the finger *and* the brand in focus at the same time,' or they would want to see all the lines of the car in focus," he says. "I have framed the perfect shot, but my plane of focus is limited because it's out of range of the minimum or maximum distance. I then would have to switch cameras and lenses, and that meant I would lose time. I want to use whatever camera I choose and have the option to use a variety of lenses."

So, de Uña Jaime designed, built and patented a solution for larger-format cameras: the Freelensing Cine universal tilt, shift and swing system with x-, y- and z-axis lens movement. The system decouples the lens from the camera body and manipulates the position of the lens to change the focal plane, taking advantage of the larger surface area provided by modern full-frame sensors on which the image from the lens can be projected. And it can accommodate a broad range of lenses due to the system's placement of the pivot point at the sensor plane, not in air or at the entrance pupil, which allows for the use of lenses with the same size image circle as the imager while still providing the effect of swing-tilt.

Currently, the Freelensing Cine system works with Arri's Alexa Mini, Mini LF and 35;

Sony's Venice 1 and 2; and Red's V-Raptor, V-Raptor XL and DSMC2 and 3. Cinematographers can use a zoom or prime lens of choice, including anamorphics, across a variety of lens mounts, maintaining visual consistency across the production. Or, one can opt for vintage lenses and even projection lenses — any lens weighing up to 8.8 pounds (4kg), really. It's a hands-on solution for in-camera creative framing through analog control of the focal plane.

The camera lens mount (PL or LPL) is removed from the camera. The corresponding Freelensing Cine camera mount is attached to the rear of the system's bellows and then threaded to the front of the camera with the mount screws. The bellows is made of Italian sheepskin because of its antistatic properties. A variety of lens mounts can be attached to the front of the bellows. The aluminum system cage mounts on 19mm rods, and a 15mm adapter is available.

With a turn of the z-axis adjustment knob, lens collimation is set to 52mm for PL mounts or 44mm for LPL mounts. These are the base settings for image brightness; in other words, exposure influence is 0. Any lens can be turned into a close-focus lens with z-axis adjustment. Though pulling the lens rear element away from the sensor beyond the base distance setting results in a loss of light, this can be compensated for with iris or camera ISO adjustment.

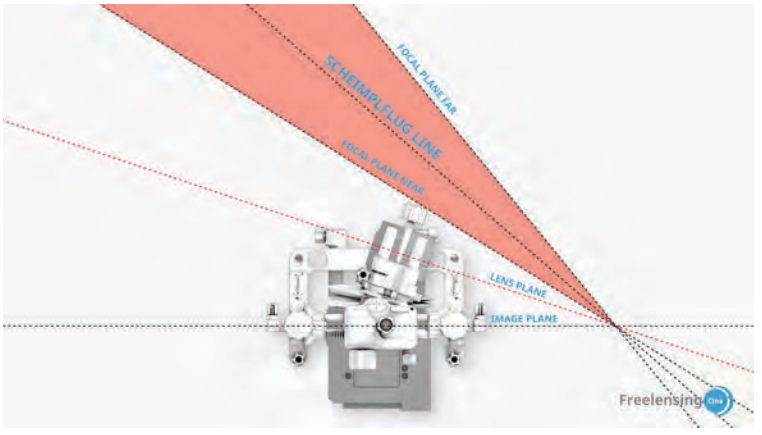
From there, the focal plane can be further manipulated for fore-, mid- and background elements in the frame, achieving a wide variety of options from a single camera position, with precise blurs, distortions, macro focus, focus on multiple subjects, in essence creating flexible split-diopter and depth-of-field effects. The manual adjustments offer x-axis offset from -25mm to +25mm and swing from -20 degrees to +20 degrees, y-axis offset from -25mm to +25mm, and rotation from -20 degrees to +20 degrees. Once the lens position and framing are finalized, the x, y and z axes can be locked. Internal springs in the cage assist in the raising and lowering of a lens — the y offset — so a lens won't drop when unlocked.

The axes also can be left unlocked for motorized movement. Threaded mounting points are located around the cage to use wireless motors, meaning that the x, y and z axes and, importantly, lens focus can be controlled continuously, allowing for in-shot creative choice and use on jibs, cranes and Steadicam, or handheld or in hard-to-reach positions.

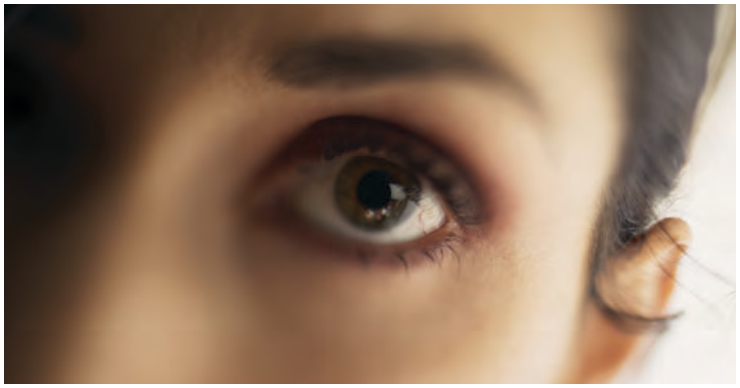
"Visual expression is in the minds of the cinematographers and the directors," says de Uña Jaime. "This tool puts the possibilities in the hands of the creators, and that is always good. I don't like to have something special in my mind and not have a way to create it."

He added another creative touch to the Freelensing Cine system: the option to use a bellows with a *transparent* front. "I can take a light and put a special flare directly to the camera sensor, even a colored light," he says. This can be controlled with a half-matte sleeve that slips over the transparent part of the bellows, so a cinematographer can specify from where the light strikes — above, below or either side.

The Freelensing Cine is available for both rental and purchase. Visit www.freelensingcine.com or call +34 661 575 575 to learn more.



Top: Sergio de Uña Jaime, AEC, CEO of Freelensing Cine — flanked by director Nacho Clemente and 1st AC Manu García-Gil in Port of Santoña in Cantabria, Spain — captures footage with his invention for a Xiaomi 14 Ultra commercial. Above: An illustration of the physics involved in altering the lens plane away from the image plane and the near and far points of depth of field that are achieved.



The effects of adjusting the lens plane to control depth of field with the Freelensing Cine.

The Raptor Scope's settings for pan (top) and rotation (bottom).

Raptor Scope

A good scope or snorkel-lens system can make the small look mightily life-size and give the camera access to tight spots. Often, though, these optical systems are not very fast and require a lot of light. Klaus Eckerl, CEO and founder of precision-optics engineering company IB/E Optics in Freyung, Germany, has designed a snorkel solution which addresses that: the Raptor Scope, which operates at a T5.6 for full frame and a T4 for Super 35.

The Raptor Scope was born out of Eckerl's work on the 2006 T4 HD Scope for ⅔" high-definition cameras. Technically, "born"

"I don't like to have something special in my mind and not have a way to create it."

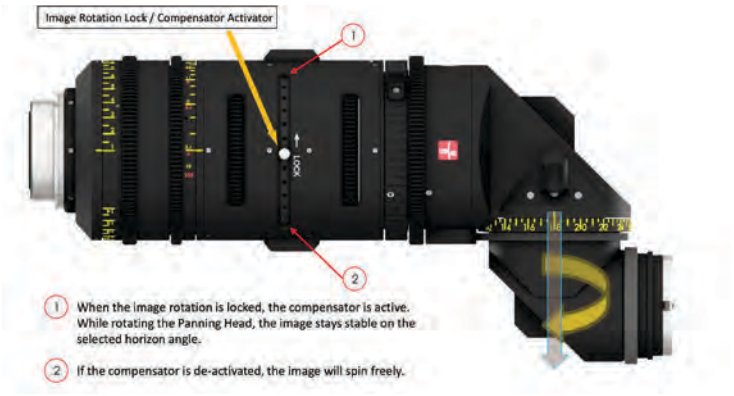


Image Rotation Lock / Compensator Activator
1
2
LOCK
1 When the image rotation is locked, the compensator is active. While rotating the Panning Head, the image stays stable on the selected horizon angle.
2 If the compensator is de-activated, the image will spin freely.

Top left: Raptor Scope proprietary lenses. Top right: A graphical explanation of the scope's image-rotation lock, which activates a compensator. Above: A demonstration of the scope in action at ATM Lens Days 2025 in Warsaw.

means completely redesigned. "Just scaling the scope from ⅔-inch format, or 11mm, up to full-frame 43.4mm would lead to four times the size and four times less light," he explains. "It would have been a full-frame scope 1 meter long and a T-stop of 15 or 16. So, we decided to fully design a new scope."

Engineering took place over two years, during which a larger prism was crafted for more light transmission, resulting in the target stop of T5.6 (FF)/T4 (S35) but in a form factor four times more compact than older scopes. Its length, without lens, is 323.3mm, or 12.73". Its height from the top of the barrel to the very bottom of the snorkel offset is 167.9mm, or 6.6". Internal focusing means that there is no telescoping of the system's length when focusing, and the system remains at a consistent length and will only change depending on the choice of lens. The rear of the Raptor Scope is UMS PL camera mount, with options for LPL, EF and FZ. At the front, the standard lens mount is Leica M, with mounting adapter options for PL, LPL and EF lenses weighing up to 4 pounds.

IB/E Optics has designed a series of five Raptor Scope full-frame, M-mount lenses covering 24mm, 35mm, 50mm, 75mm and 90mm. Each lens has a fixed focus and is T2.4 — more than enough light transmission for T5.6 full frame or T4 Super 35. The latter is accomplished with the S35 0.75x Speed Booster Module, which provides coverage for 35mm plus 1 extra stop of light yet does not change the scope's length or any outer mechanical parts.

Traditionally, some offset of snorkel systems introduce a fluctuation, or bend, in the horizon as the lens is panned, which appears around the middle of the move, and a wobble in the image as it is rotated. The Raptor Scope was designed with an internal compensation system to eliminate this. "Scopes, by design, don't have that nodal center," says ASC associate member James Bouchie, co-CEO of Second Reef along with fellow ASC associate Alexander Schwarz. Second Reef is an umbrella company specializing in optics for cinematographers and the film industry, and IB/E Optics is one of its partners. "The Raptor Scope is more centered than any other scope out there," Bouchie says. "The horizon is locked throughout the pan, and wobble is eliminated."

In further explaining this compensation, Eckerl discusses the effect an image offset of mere microns had on tolerances for the six reflex surfaces in the Raptor's rotation group, and the compounding offset those six surfaces had on the exiting light rays. This led him to develop the Raptor Scope's Double Collimation, which adjusts for near-perfect image alignment. "This means you can cover things all in one shot or setup rather than having multiple setups," says Bouchie. "Cinematographers can easily do shots that would either be incredibly difficult for setup and time or impossible otherwise."

The flexibility of the Raptor Scope extends to its maneuverability. Pan, tilt and roll can move 360 degrees — infinitely, as in no fear of threading out. If the camera is out of position ever so slightly in the shot setup, the Raptor Scope can correct the framing instead of the user having to reposition the camera. With wireless motors, these moves can also contribute in creative ways toward elaborate maneuvers and tracking into and through tight quarters.

The system's flexibility in lens choice means it can be used for difficult angles, areas with space constraints, inside props and pieces of set design, and challenging multi-move and multi-subject shots. Large-barreled lenses, however, would limit pan travel because the lens would not be able to pass under the scope.

Two additional Raptor Scope attachments are on the horizon: the Raptor Endo 24mm, a narrow-tubed 24mm T4.5 PL-mount lens designed to reach into spaces where traditional lenses won't fit (including into liquids); and the Borescope Module, which converts the Raptor's snorkel design into a straight-barrel version and extends the chosen lens into hard-to-reach areas while maintaining unlimited image rotation and improving close-focus performance.

The Raptor Scope system is available for rental and purchase. Visit www.ibe-optics.com or call +49 (0) 8551 999 80 30 to learn more.

Clubhouse News Compiled by Hannah Abell
Society Welcomes New Members

Michael Liu, ASC, CNSC

As a youth in China, Liu was fascinated with observing others. That grew into something more when he received a Seagull film camera from an uncle. He delved into its mechanics and discovered a new form of expression — one that didn't require words. He also acquired a deep love of cinema during what he calls "a golden era" in Asian film; favorites included *Chungking Express*, *Raise the Red Lantern* and *Farewell My Concubine*. Foreign movies like *Blade Runner*, *Schindler's List* and *Seven* also made a lasting impression.

At 18, Liu interned on a film crew that was using an Arri 535B, and he recalls that "its holy light captivated me." After studying cinematography at the Beijing Film Academy, he apprenticed with Oscar winner Peter Pau, HKSC, "[whose] relentless pursuit of perfection and meticulous attention to detail further crystallized my professional aspirations as a cinematographer."

Liu's feature credits include *Seven Killings*; *The Sacrifice*; *Hi, Mom*; *Mozart From Space*; *The Wandering Earth II* and *Yolo*. He was nominated for Macau's Golden Lotus Award for *The Sacrifice*.

In addition to Pau, Liu cites cinematographers Roger Deakins, ASC, BSC; Robby Müller, NSC, BVK; and Mark Lee Ping-bing as major influences.

When he isn't shooting, he focuses on mentorship and peer education, and on his website, he enjoys sharing lighting and lens tests, case studies and professional insights. "Sharing my experiences, experiments and lessons learned with industry friends holds great importance to me."

Gyula Pados, ASC, HCA

Los Angeles-based cinematographer Pados grew up watching Russian war movies in communist Hungary, where few films from the West were exhibited. His first experience with an American movie was *Star Wars*, which attracted huge lines at the box office. "After the credits, I ran straight back to the end of the line to get another ticket," he recalls.

After high school, Pados co-founded a music-video production company and worked on camera crews on local productions, including the telefilm *Stalin*, shot by Vilmos Zsigmond, ASC, HSC, and the feature *The Long Shadow*, directed by Zsigmond and shot by Gábor Szabó, HSC. In 1990, Pados enrolled in the cinematography program at Hungary's Academy of Drama and Film. While studying there, he shot the short *Meter Running* in England, and he returned to England to work after he graduated in 1996. He made his feature-cinematography debut on *Hotel Splendide* and then shot another English feature, *The Heart of Me*.

Nimród Antal's comedic thriller *Kontroll* brought Pados back to Hungary, and the film garnered international acclaim. Once Pados moved to Los Angeles, he and Antal reteamed on the action film *Predators* and the 3D concert/narrative hybrid *Metallica Through the Never*.

Pados won a Camerimage Golden Frog for *Fateless*, directed by Lajos Koltai, ASC, and he subsequently reteamed with Koltai on *Evening*. His feature credits also include *Basic Instinct 2*, *The Duchess*, *Million Dollar Arm*, *Maze Runner: The Scorch Trials*, *Jumanji: Welcome to the Jungle*, *Maze Runner: The Death Cure*, *Jumanji: The Next Level*, *Shazam! Fury of the Gods* and *Kingdom of the Planet of the Apes*.

Ken Seng, ASC

Seng was drawn to the fantastic as a child in the Midwest. "I was all about the adventure worlds completely different from my own," he recalls. In high school, he spent hours learning photography techniques in the darkroom. He began studying the moving image at Columbia College Chicago, where he served as a teaching assistant for lighting courses; he also worked in the shop at Thomasson Lighting. He became a member of IATSE 476 as a grip/electric in Chicago, and after working on features and commercials there, he moved to New York to pursue a cinematography career.

After he shot a range of short films, MTV promos and features, his break came in 2002 with *Street Thief*. Around that time, he met Conrad L. Hall, ASC while Hall was shooting *Road to Perdition*. "He really clarified the way I think about scene construction and lighting," says Seng, who also counts among his mentors Chicago-based commercial gaffer Todd Thomasson and cinematographer Darius Khondji, ASC, AFC.

Seng's credits include the features *Deadpool*, *Project X*, *Terminator: Dark Fate*, *Disconnect* and *They Cloned Tyrone*; the series *Love, Death & Robots*; and the pilots *I'm Dying Up Here*, *Ghosted* and *Rush*. His commercial clients include Nike, American Express, Gatorade, Samsung, the U.S. Army, AT&T and Geico.

A variety of books and apparel on display at the ASC's booth for Cine Gear Expo 2025.

PHOTOS ON PAGES 65-69 BY DANYAEL M. ALCARAZ AND FERNANDO NAVA.

ASC Busy at Cine Gear

The Cine Gear L.A. Expo in June saw ASC members participating in panels, demos and book signings.

The ASC and Sony co-hosted a live Clubhouse Conversation between **Adam Bricker, ASC** and *Severance* director of photography Jessica Lee Gagné. Gagné illuminated her creative process and dove deep into the aesthetics of the popular streaming series.

Bricker subsequently served as a panelist on Red Digital Cinema's discussion of *Chef's Table* (see page 28), alongside ASC associate member **Naida Albright**.

Alice Brooks, ASC sat for a Q&A about her work on *Wicked,* and she later joined **Lawrence Sher, ASC** for the discussion "Lighting the Way." In an event co-sponsored by Red and ShotDeck, Sher interviewed **Don Burgess, ASC**, about his career.

The ASC and Aputure joined forces to present "A Lifetime of Storytelling With Team Deakins," a discussion with **Roger Deakins, ASC, BSC** and James Ellis Deakins, his wife and creative partner. ASC associate member **Jay Holben** led the conversation. The Deakinses later signed copies of Roger's book *Reflections: On Cinematography* at the ASC booth; the line quickly stretched past two booths, and the pair stayed for several hours to sign books and speak with the crowd.

Autumn Durald Arkapaw, ASC participated in a discussion about her work on *Sinners*, breaking down the technical aspects of select scenes and exploring how she and writer/director Ryan Coogler strove for a bold visual language.

Cine Gear and Universal Studios collaborated to host "Back to the Backlot" with **Dean Cundey, ASC, CSC**, a discussion held on both days of the expo. Cundey was also available for a meet and greet in Universal's Courthouse Square, which figured prominently in *Back to the Future*.

In the presentation "Visual Storytelling Using AI," **Michael Goi, ASC, ISC** participated in a live demonstration of AI technology and discussed its potential as a tool in a filmmaker's creative arsenal.

Shane Hurlbut, ASC joined several panels over the course of the expo. He held a presentation focused on LED-powered night cinematography on both days, and participated in multiple "Candid Conversation" panels. His other panel credits included "Cinematography in the Battery Era" and "Hollywood Hacked: Creators, Cameras & The Content Revolution," where he was joined by ASC associate member **Michael Cioni**.

The popular "Dialogue With ASC Cinematographers" panel, hosted by ASC Education & Outreach Committee co-chairs **George Mooradian** and **Shana Hagan**, included Society members **Mandy Walker** (making her first public appearance as president of the ASC), **Karl-Walter Lindenlaub**, **Baz Idoine**, **Roberto Schaefer**, **Sam McCurdy**, **Natalie Kingston**, **Markus Förderer**, **Nicole Hirsch Whitaker**, **Attila Szalay**, **Sevdije Kastrati-Dill** and **Patrick Cady**.

Hagan also represented the ASC in a panel discussion of women documentary cinematographers.

Roy H. Wagner, ASC signed copies of his new book, *A Cinematographer's Life Beyond the Shadows* at the ASC booth.

Natasha Braier, ASC, ADF joined the Women in Cinematography panel "A Survival Guide for Cinematographers in Turbulent Times." She also joined ICG, IATSE Local 600 to discuss virtual lighting for virtual cinematography.

In collaboration with Blackmagic Design, **Blake McClure, ASC** discussed the new Blackmagic Ursa Cine 17K 65. McClure is currently using the camera on an untitled Steve Carell project.

Mark Weingartner, ASC moderated the ACES panel "Color Management That Can Up Your Game!"

Finally, the Cine Gear Awards were presented as follows: Brooks received the Visionary Award; Cundey received the California Dreaming Award; and Mooradian received the Karl Kresser Heart of the Community Award.

Attendees gather outside the Clubhouse for the Society's annual Summer Splash.

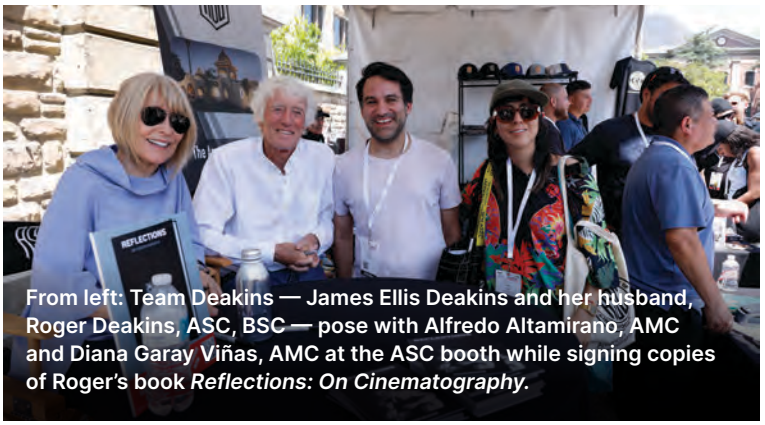
Society Hosts "Summer Splash"

ASC members, sponsors, advertisers and colleagues were welcomed to the Clubhouse for the Society's annual "Summer Splash" on June 7.

The barbecue was sponsored by Cinelease, Nanlux, Tilta and Premier.

Outgoing ASC President **Shelly Johnson** kicked off the event by warmly introducing his successor, **Mandy Walker, ASC, ACS**. Walker then addressed the attendees with a welcome speech.

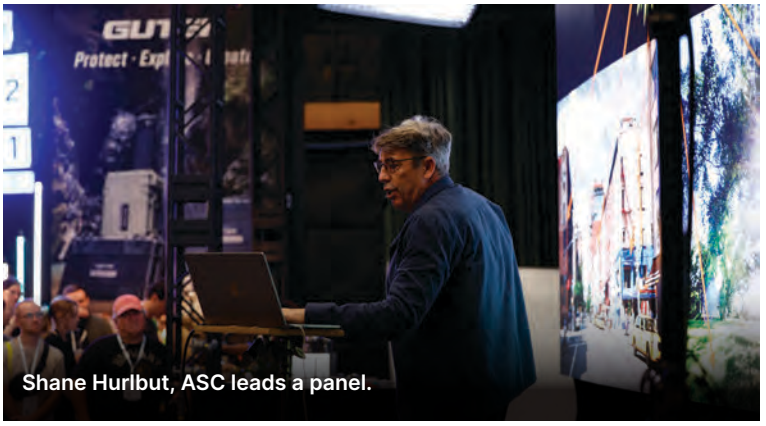
The festivities included birthday wishes for ASC Sergeant-at-Arms **Charlie Lieberman**.



From left: Team Deakins — James Ellis Deakins and her husband, Roger Deakins, ASC, BSC — pose with Alfredo Altamirano, AMC and Diana Garay Viñas, AMC at the ASC booth while signing copies of Roger's book *Reflections: On Cinematography.*

ASC members Alice Brooks and Lawrence Sher lead a discussion on lighting techniques.

Shana Hagan, ASC (far right) leads a panel discussion highlighting women cinematographers working in documentary. With her on the panel (from left) are Emily Topper, Chloe Weaver, Nausheen Dadabhoy and Jenna Rosher.



Shane Hurlbut, ASC leads a panel.

Natasha Braier, ASC, ADF talks with moderator Danna Kinsky for a panel titled "A Survival Guide for Cinematographers in Turbulent Times," hosted by Women in Cinematography.

From left: Moderator Mark Weingartner, ASC and colorists John Daro, Lynette Duensing and Alastor Arnold share their insights for a panel on color management.

Dean Cundey, ASC receives the California Dreaming Award. With him are wife Patricia Cowmeadow (left) and son and daughter-in-law Christopher and Portia Cundey.

Holding his Karl Kresser Heart of the Community Award, Mooradian (center) poses with (from left) Dean Cundey, ASC; Michael Goi, ASC, ISC; ASC associate member Juliane Grosso; Visi Mooradian; John Simmons, ASC; and honorary ASC member Patty Armacost.

Outgoing ASC President Shelly Johnson introduces the newly elected Walker to attendees at the Summer Splash.

Walker addresses the crowd.

A grateful ASC Sergeant-at-Arms Charlie Lieberman is presented with a birthday cake by ASC staffer Noemi Lopez.

From left: Andrzej Bartkowiak, ASC; Panavision CEO and ASC associate member Kim Snyder; Steven Shaw, ASC.

The Cinelease crew, from left: Richard Pilla, Society associate member Gary Paz, Brian Fosnaugh, Rachel Thomas, associate member Chris Rogers, Bill Sanford, Crystal Marshall, Nelson Monge, Steve Basso, Mike Nudge, Daniel Varela, Derek Elkins.

Aerial cinematographer Dylan Goss (left) with Mat Beck, ASC.

Goi leads a panel comprising Magdalena Gorka, ASC; Caleb Deschanel, ASC; Kingston; Braier; Cady and Schaefer on Day 1 of the Society's AI Summit.

Society Hosts AI Summit

The two-day presentation "Visual Artistry in the Age of AI" attracted a capacity crowd at the Clubhouse and was livestreamed to the public on June 10-11.

The event explored the ways in which artificial-intelligence technology is shaping a new path forward for creatives working across the entertainment industry. There were presentations on current AI technology, panel discussions, real-time demonstrations, and opportunities for hands-on experience with various AI programs.

On June 10, participants toured Eyeline Studios and then returned to the Clubhouse for several presentations. **Caleb Deschanel, ASC**, helped host a live AI creation session and participated in a panel about ethics and AI along with **Roberto Schaefer, ASC, AIC**; **Patrick Cady, ASC**; and others.

The June 11 schedule included presentations by various companies and the panels "Visual Effects and AI" and "AI and the Law." After lunch, **Dante Spinotti, ASC, AIC**, helped host a live AI creation session, which was followed by a panel on creating cinematic AI with Schaefer. The summit closed with "AI and the Future of Filmmaking," a panel that included ASC members Spinotti, Cady, **Shelly Johnson** and **Sevdije Kastrati-Dill**.

Look for detailed coverage of the AI Summit in an upcoming issue of *AC*.

BOTTOM LEFT PHOTO COURTESY OF FUJIFILM.

Jimmy Lindsey, ASC shares insights on his experience using Fujifilm's new digital filmmaking camera, the GFX Eterna

Mark Irwin, ASC experiments with the Eterna at the Clubhouse.

Society Previews GFX Eterna

ASC members and guests gathered at the Clubhouse on June 4 for an early look at Fujifilm's GFX Eterna, the company's first digital filmmaking camera. The event had a members-only portion followed by a series of presentations and panels. Eterna units in various setups were on hand for guests to preview.

Introduced by Victor Ha — vice president of the electronic imaging and optical devices divisions of Fujifilm North America — Yuji Igarashi, general manager of the company's professional imaging division, gave a welcome address.

Makoto Oishi — senior manager of product planning at the company's Imaging Solution Division of their Professional Imaging Group — delivered a presentation about the latest Eterna development specs that were announced.

Michael Bulbenko, Field Marketing Manager for Fujifilm North America Corp., spoke about Fujifilm's film legacy.

Jimmy Lindsey, ASC shared a short piece he created using the camera. He spoke at length, and took questions, about his experience using the system.

Actor-director Yutaka Mizutani and cinematographer Masahiro Aida, JSC discussed the experience of recently creating a feature-length movie using the GFX100 II, which employs the same sensor as the GFX Eterna.

Scott Testerman, technical marketing manager for Fujifilm North America's Electronic Imaging & Optical Devices Divisions, spoke about the benefits of the Eterna's sensor height — 43.8×32.9mm, currently the tallest digital sensor on the market for a dedicated cinema camera.

Look for more detailed coverage of the GFX Eterna in the next issue of *AC*.

ASC members Adam Bricker, Michael M. Pessah, Cady, Hagan, Sandra Valde-Hansen and Christopher Chomyn share a conversation with students and faculty from the University of North Carolina School of the Arts.

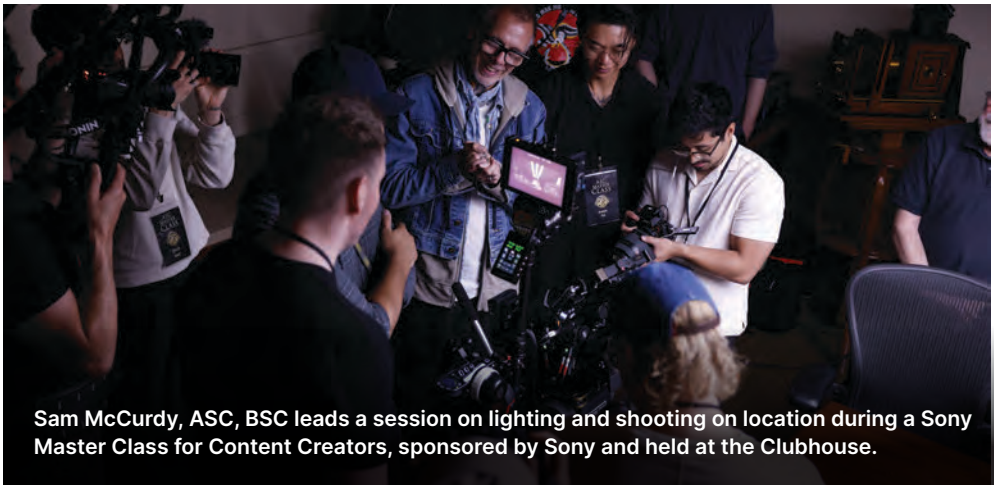
Education & Outreach Visits J.L. Fisher Mixer, Hosts UNCSA

The Society's Education & Outreach Committee recently wrapped a busy May schedule that included a panel at the J.L. Fisher Industry Mixer on May 17 and a panel at the Clubhouse for students and faculty from the University of North Carolina School of the Arts May 20.

Participants in the J.L. Fisher event were **Patti Lee, ASC**, who moderated the discussion, and ASC panelists **Mark Irwin**, **Jacek Laskus**, **Christian Sebaldt**, **Andrzej Bartkowiak**, **Peter Moss**, **Steven Shaw** and **Shelly Johnson**.

The UNCSA delegation, led by professors Scott Ressler and Paul Razza, was welcomed to the Clubhouse by then-President **Shelly Johnson**, and the group subsequently enjoyed a conversation with ASC members **Shana Hagan** (who moderated), **Sandra Valde-Hansen**, **Christopher Chomyn**, **Patrick Cady**, **Michael M. Pessah** and **Adam Bricker**.

The Society's Education & Outreach Committee is co-chaired by Hagan and **George Mooradian, ASC**.



Sam McCurdy, ASC, BSC leads a session on lighting and shooting on location during a Sony Master Class for Content Creators, sponsored by Sony and held at the Clubhouse.

ASC Hosts Sony-Sponsored Master Class for Content Creators

On May 28, the ASC hosted a one-day master class for content creators, sponsored by Sony, at the Society's historic Clubhouse in Hollywood. During the event, a small group of students were immersed in two-hour sessions instructed by ASC members **Patrick Cady**, **Charlie Lieberman**, **Sam McCurdy** and **Claudio Miranda**, as well as cinematographer Oren Soffer.

The class included sessions that covered lighting and shooting on location (led by McCurdy), for still photography (led by Lieberman), in low-light situations (led by Miranda), and for portraiture (led by Cady and Soffer).

Among those in attendance was filmmaker Andy To, who was invited by Sony to test its new FX2 full-frame cinema camera on site and documented his experience meeting with instructors, students and ASC staff. In a video posted to his YouTube channel, To shared his biggest takeaways from each session: the importance of imbuing each shot with emotional purpose, how cinematographers can gain staying power by working resourcefully, and the intangible qualities captured when shooting outside of a synthetic environment.

Beebe Receives Pierre Angénieux Tribute

Dion Beebe, ASC, ACS was honored with the Pierre Angénieux Tribute for career achievement in cinematography on the closing night of the 78th Cannes Film Festival in May.

The event included remarks by Angénieux President Emmanuel Sprauel and César Award-winning actress Carole Bouquet, who presented Beebe with a commemorative Optimo Ultra Compact 21-56mm FF zoom lens engraved with his name, as well as videotaped messages from directors Gillian Armstrong, Niki Caro, Mira Nair, Jane Campion, Michael Mann, Ang Lee and Rob Marshall; actors Harvey Keitel, Jaafar Jackson and Tom Cruise; and producer Marc Platt.

"I'm sincerely humbled to be joining such an esteemed group of cinematographers and artists who previously received this award — **Darius Khondji** [ASC, AFC], a genius; **Santosh Sivan** [ASC, ISC] last year; **Ed Lachman** [ASC]; **Roger Deakins** [ASC, BSC]; and, of course, **Bruno** [**Delbonnel**, ASC, AFC]," Beebe said. "It is really meaningful for me to receive this recognition from Angénieux, [a company that] has been a part of my filmmaking career from the beginning. I'm moved by the fact that this award not only seeks to highlight and elevate the art and the craft of cinematography, but also recognizes a truly international community of filmmakers."

The day before the event, Beebe led a master class during which he reflected on his professional journey and reminisced about shooting for Campion (*Holy Smoke*, *In the Cut*), Marshall (*Chicago*, *Memoirs of a Geisha*), Mann (*Collateral*, *Miami Vice*), Lee (*Gemini Man*) and Doug Liman (*Edge of Tomorrow*).

Dion Beebe, ASC, ACS accepts the Pierre Angénieux Tribute on closing night of this year's Cannes Film Festival.

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TOP PHOTO BY PAULINE MAILLET. BOTTOM PHOTOS COURTESY OF THE ASC ARCHIVE / THE TELLY AWARDS.

ASC Clubhouse Conversations Telly Awards 2025

The ASC's popular online series, *Clubhouse Conversations*, received top honors at this year's edition of the Telly Awards, which celebrates outstanding achievements in video, television and online broadcasting. *Clubhouse Conversations* earned a Gold Telly in the awards' Entertainment category, and Silver Tellys in both the Education & Discovery and Interview & Talk Show categories.

Several individual episodes also received accolades.

An episode on the Netflix miniseries *Ripley,* hosted by **Caleb Deschanel**, **ASC** and featuring the show's cinematographer, **Robert Elswit**, **ASC**, won silver in four categories: Entertainment, Behind the Scenes, Editing and Directing. The latter two of those awards went to ASC staff members Stephen Whitaker and Alex Beatty, respectively.

The series' episode on *Wicked*, featuring the film's cinematographer, **Alice Brooks**, **ASC**, and hosted by **M. David Mullen**, **ASC**, won two Silver Tellys — the first awarded in the Behind the Scenes category, and the second in Interview & Talk Show.

A Silver Telly in Behind the Scenes was also awarded to an episode on the making of *Shōgun*, hosted by **Adam Bricker**, **ASC**, and featuring series cinematographer **Sam McCurdy**, **ASC**, **BSC**.

Finally, the episode on *Joker: Folie à Deux* won two Silver Tellys. Hosted by **Patrick Cady**, **ASC**, with **Lawrence Sher**, **ASC**, the episode won in both the Behind the Scenes and Interview & Talk Show categories.

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Wrap Shot
Grand Prix (1966)

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The cover of *AC*'s January 1967 issue featured a collage of behind-the-scenes photos and production stills from John Frankenheimer's *Grand Prix*, an immersive, in-the-driver's-seat racing picture starring James Garner and shot by Lionel Lindon, ASC, which had hit Cinerama screens just before the holidays and went on to win three Academy Awards. The article was penned by 2nd-unit and helicopter camera operator John Stephens, whose vivid recollections of the filmmakers' approaches and innovations make for an excellent read.

After taking in Mark Dillon's compelling piece on the work of ASC member Claudio Miranda, director Joseph Kosinski and 1st AC Dan Ming for *F1: The Movie* (see page 16), hop over to our website to learn (or rediscover) how high-octane visuals were achieved with the technologies of decades past.

"Special rigging made possible the use of two electronic cameras at the same time, and I could switch from one to the other."

"During one actual race day at Monte Carlo, we had three cameras mounted at once on the Ford-GT," Stephens recalled. "One was a Panavision 65mm camera mounted forward and tied off for a point-of-view shot. Another similar camera, also tied off, was mounted directly in back to photograph the cars behind us. The third camera, remotely controlled, was mounted on the Pelco head in the center of the Ford-GT at a height of about 2 feet. This carried a 100mm lens for tight closeups of the drivers. The front and back cameras carried 50mm lenses to get wider-angled shots. I could control the picture on the top camera precisely by watching the monitor, but the console also carried on-off switches for the front and back cameras.

"Special rigging made possible the use of two electronic cameras at the same time, and I could switch from one to the other.

"The Pelco electronic pan-tilt head was capable of panning a full 360 degrees when mounted on a Formula-1 car, and this came in very handy for some of the lengthy continuous shots which Frankenheimer wanted to make without any cuts."

— Andrew Fish

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